ARCHIVES

E PROBLEM AND PRACTICE ARITHMETICS

FIRST BOOK

CURRICULUM
Archives

SMITH
·LUSE·
MORSS

JUNE
S M T W T F S
1 2 3 4 5
6 7 8 9 10 11 12
13 14 15 16 17 18 19
20 22 23 24 25 26 27
28 29 30
JULY
S M T W T F S
1 2 3 4
5 6 7 8 9 10 11
12 13 14 15 16 17 18
19 20 21 22 23 24 25
26 27 28 29 30 31
DECEMBER
S M T W T F S
1 2 3 4 5 6
7 8 9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30 31

MAY
S M T W T F S
1 2 3 4
5 6 7 8 9 10 11
12 13 14 15 16 17 18
19 20 21 22 23 24 25
26 27 28 29 30 31
JANUARY
S M T W T F S
1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
29 30 31
SEPTEMBER
S M T W T F S
1 2 3 4 5
6 7 8 9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28 29 30

Ex libris
universitatis
albertaensis

The Problem and Practice Arithmetics

FIRST BOOK

BY

DAVID EUGENE SMITH
TEACHERS COLLEGE, COLUMBIA UNIVERSITY

EVA MAY LUSE
IOWA STATE TEACHERS COLLEGE

AND

EDWARD LONGWORTH MORSS
EDITOR OF MATHEMATICAL TEXTBOOKS

ILLUSTRATED BY
CORNELIA J. HOFF

GINN AND COMPANY
BOSTON · NEW YORK · CHICAGO · LONDON
ATLANTA · DALLAS · COLUMBUS · SAN FRANCISCO

COPYRIGHT, 1929, BY DAVID EUGENE SMITH, EVA MAY LUSE
AND EDWARD LONGWORTH MORSS
ALL RIGHTS RESERVED

PRINTED IN THE UNITED STATES OF AMERICA

730.1

LIBRARY OF THE UNIVERSITY
OF ALBERTA

The Athenæum Press
GINN AND COMPANY · PRO-
PRIETORS · BOSTON · U.S.A.

PREFACE

IN THE preparation of a series of arithmetics there are various extreme positions from which the work may be approached. As is always the case, however, there is also a safe mean that is certain to produce more satisfactory results in the classroom. In this connection, the distinguishing features of this book are as follows:

1. The selection and distribution of topics are based upon a careful analysis of the leading modern courses of study.

2. The methods of presenting these topics are based upon the latest scientific studies, supplemented by the experience of a large number of progressive and successful teachers.

3. There is an unusually large amount of both abstract and concrete exercises. The book offers sufficient teaching material for all legitimate school needs.

4. Each new operation is approached by sound methods. The approach is slow, natural, and well motivated at each step, with all unnecessary difficulties eliminated. The problems accompanying these steps are those of child and home life, and are both interesting and purposeful.

5. Among the important teaching devices employed are diagnostic and achievement tests, remedial drills, standardized practice exercises, provisions for individual differences, and a scientific distribution of skills. At the same time, the fact that this is a book for the pupil has not been lost sight of, and ultra-technical terms which would make the work seem

202337

hard and uninteresting to either pupil or teacher do not appear in the text. The language of the book has purposely been kept simple and within the limits of a checked vocabulary.

6. Special attention has been paid, particularly in the work of Grade III, to the need for proceeding very slowly in taking the steps leading to a clear understanding of the fundamental operations, and for providing the large amount of carefully graded material needed to insure the requisite mastery of the numerous skills.

7. Great care has been taken in typography and in illustration. If ever a child needs clear type and open, well-arranged pages, it is during the first steps in a new science. It will be noticed that there are no explanations in small type, and that the pages are carefully planned with a clear distinction between text and exercise material. The illustrations are more numerous than is usual, and every effort has been made to utilize to the fullest extent the interest value of attractive pictures closely related to the text.

These are the foundations upon which this book rests. It is the hope of the authors that it will thus meet the need for a textbook in arithmetic embodying the latest and most sanely progressive ideas in the teaching of the subject.

David Eugene Smith

Eva May Luse

Edward Longworth Morse

CONTENTS

CHAPTER ONE. BASIC FACTS IN ADDITION AND SUBTRACTION

SOCIAL OBJECTIVE: *Everyday Need for Numbers*

	PAGE
I. Counting	1
II. Addition with Sums to 10	5
III. Addition with Sums to 18	13
IV. Meaning of Subtraction	25
V. Subtraction. Numbers to 18	33
VI. Column Addition	47
VII. Column Subtraction	55
VIII. Adding by Endings	57
IX. General Review	63

CHAPTER TWO. COMPLETION OF ADDITION AND SUBTRACTION

SOCIAL OBJECTIVE: *Everyday Problems involving One Step*

I. Preparation for Carrying	65
II. Subtracting by Endings	73
III. Using Larger Numbers	81
IV. Addition with Carrying	85
V. Subtraction with Borrowing	107
VI. Multiplication	119
VII. General Review	129

CHAPTER THREE. MULTIPLICATION, DIVISION, AND FRACTIONS

SOCIAL OBJECTIVE: *Problems of School and Home*

PAGE

I. Easy Multiplications 131
II. Multiplication with Carrying 139
III. Easy Divisions 147
IV. Multiplication and Division 157
V. Measures and Easy Fractions 173
VI. General Review 189

CHAPTER FOUR. HARDER MULTIPLICATION AND DIVISION

SOCIAL OBJECTIVE: *Arithmetic in Work and Play*

I. Four-Figure Numbers 193
II. Short Division with Larger Numbers 195
III. Division with Carrying 205
IV. Problem Solving 211
V. Multiplication and Division 215
VI. General Review 253

CHAPTER FIVE. INCREASING SKILLS IN SIMPLE OPERATIONS

SOCIAL OBJECTIVE: *Problems relating to Outdoor Life*

I. Reading and Writing Numbers 257
II. Addition 259
III. Subtraction 269
IV. Multiplication 275
V. Division 281
VI. Using Larger Numbers 285
VII. Multiplication and Division 289
VIII. General Review 311

CHAPTER SIX. PREPARING FOR LONG DIVISION

SOCIAL OBJECTIVE: *Simple Uses of Money*

PAGE

I. Reading and Writing Numbers 313
II. Short Division with Remainders 317
III. Measures and Fractions 329
IV. Finding Averages 343
V. Addition, Subtraction, Multiplication 347
VI. The Steps in Long Division 353
VII. General Review 369

CHAPTER SEVEN. LONG DIVISION

SOCIAL OBJECTIVE: *Simple Economic Problems*

I. Reading and Writing Numbers 371
II. Addition and Subtraction 375
III. Multiplication 379
IV. Long Division 387
V. Problem Solving 399
VI. Multiplication and Long Division 405
VII. General Review 423

CHAPTER EIGHT. MEASURES AND FRACTIONS

SOCIAL OBJECTIVE: *Measures and Fractions in Life Situations*

I. Reading and Writing Numbers 427
II. Addition and Subtraction 429
III. Multiplication and Division 431
IV. Measures and Fractions 445
V. Problem Solving 473
VI. General Review 477

TABLES FOR REFERENCE 481
INDEX 483

CHAPTER ONE

BASIC FACTS IN ADDITION AND SUBTRACTION

I. COUNTING

Counting Things in a Picture

1. Look at the picture on the opposite page. How many blackbirds are there?

2. How many ducks are swimming? How many ducks are there in all?

3. How many frogs do you see?

4. How many birds is Tom feeding?

5. Count the turtles and tell the number.

6. How many trees are there?

7. Begin with 1, 2, 3, and count as far as you can, but do not go beyond 100.

8. When you count, what number comes next after 11? after 19? after 29? after 48?

9. What number comes just before 8? before 14? before 50? before 79? before 100?

10. What number comes between 24 and 26? between 39 and 41? between 65 and 67?

See if you can answer these questions:

1. How old are you?
2. How tall are you?
3. How many pounds do you weigh?
4. When is your birthday?
5. What day of the week is today?
6. How many days are there in a week?
7. What day of the month is it?
8. How many months are there in a year?
9. What numbers are put on clockfaces?
10. What time is it now?
11. At what time do you come to school?
12. How many minutes does it take you to come from home to school?
13. How many pupils are there in your class?
14. How many boys are here today? How many girls are here today?
15. Find page 57 in this book.
16. Give any telephone number you know.
17. Give a few numbers that you have seen on houses; on streets; on automobiles.
18. In what other ways have you seen numbers used? Tell the class about them.

1. When you count, what number comes between 11 and 13? between 29 and 31? between 52 and 54?

2. Which is nearer 100: 25 or 35? 39 or 62? 70 or 48?

3. Which is nearer 1: 9 or 15? 31 or 7? 18 or 40? 51 or 26?

4. Which is smaller: 7 or 13? 48 or 30? 19 or 21?

5. Read these numbers: 21, 95, 67, 43, 19, 70, 38, 29, 84, 62, 30.

6. In Ex. 5, which numbers are less than 50? Which are more than 50?

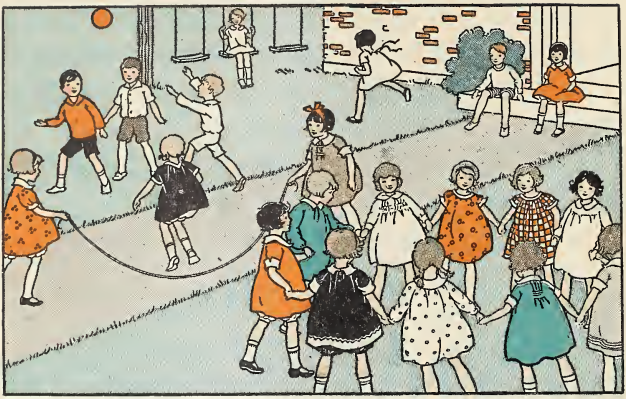
7. Give a number that is larger than 10 but smaller than 25.

8. Read these numbers by rows and by columns:

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80

9. Finish writing the numbers in Ex. 8 to 100.

10. Write in figures: fifteen, twenty-three, thirty-seven, fifty-two, eighty-nine.



1. The girls jumping the rope count by 10's. Begin with 10, 20, 30, and count to 100.

2. Sometimes they jump and count by 5's. Begin with 5, 10, 15, 20, and count to 100.

3. Read the numbers in the heavy type: **1**, **2**, 3, **4**, 5, **6**, 7, **8**, 9, **10**, 11, **12**, 13, **14**, 15, **16**, 17, **18**, 19, **20**.

4. You counted by 2's in Ex. 3. Each child in the circle has 2 hands. Count their hands by 2's.

5. Count all the children by 2's.

6. The numbers in heavy type in Ex. 3 are called **even numbers**. Read them again.

7. The numbers 1, 3, 5, 7, and so on, in Ex. 3 are called **odd numbers**. Read them.

Making Towers

1. Fred is making spool towers. How many spools are there in the higher one?

2. How many spools are there in the other tower?

3. How many black spools are there in both?

4. How many white spools are there in both?

5. How many cans are there in each of the two can towers which Mary is making?

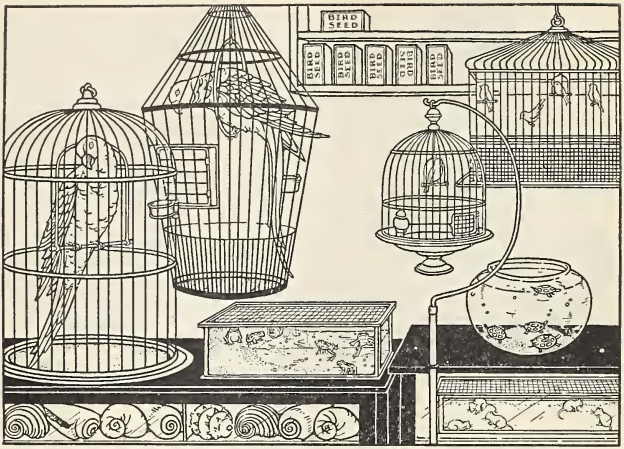
6. How many big cans are there in both?

7. How many little cans are there in both?

8. 5 spools and 4 spools are —— spools.

9. 3 cans and 7 cans are —— cans.

10. 2 spools and 6 spools are —— spools.



1. 2 cages and 2 cages are —— cages.
2. 4 birds and 1 bird are —— birds.
3. 3 frogs and 3 frogs are —— frogs.
4. 1 parrot and 1 parrot are —— parrots.
5. 4 shells and 4 shells are —— shells.
6. 3 mice and 2 mice are —— mice.
7. 1 turtle and 3 turtles are —— turtles.

8. 1 and 2 are ——.
9. 2 and 3 are ——.
10. 1 and 5 are ——.
11. 3 and 3 are ——.
12. 4 and 4 are ——.
13. 2 and 2 are ——.

AT THE bird store Margaret saw that there were 4 birds in one cage and 3 birds in the other cages. There were 7 birds in all.

Margaret said, "4 birds and 3 birds are 7 birds."

Margaret saw that 4 birds and 3 birds are the same as 7 birds.

She added 4 and 3 and got 7.

The sum of 4 and 3 is 7.

$$\begin{array}{r} 3 \\ 4 \\ \hline 7 \end{array}$$

Finding the sum is addition.

We add 2 and 2 to get the sum 4. We add 5 and 3 to get the sum 8.

You found these sums in the problems about the towers and the bird store. Cover the sums with a piece of paper and try to say them:

1.	$\begin{array}{r} 5 \\ 4 \\ \hline 9 \end{array}$	$\begin{array}{r} 3 \\ 7 \\ \hline 10 \end{array}$	$\begin{array}{r} 1 \\ 5 \\ \hline 6 \end{array}$	$\begin{array}{r} 2 \\ 3 \\ \hline 5 \end{array}$	$\begin{array}{r} 1 \\ 1 \\ \hline 2 \end{array}$	$\begin{array}{r} 4 \\ 6 \\ \hline 10 \end{array}$	$\begin{array}{r} 5 \\ 3 \\ \hline 8 \end{array}$	$\begin{array}{r} 2 \\ 2 \\ \hline 4 \end{array}$
2.	$\begin{array}{r} 5 \\ 2 \\ \hline 7 \end{array}$	$\begin{array}{r} 4 \\ 4 \\ \hline 8 \end{array}$	$\begin{array}{r} 7 \\ 2 \\ \hline 9 \end{array}$	$\begin{array}{r} 4 \\ 1 \\ \hline 5 \end{array}$	$\begin{array}{r} 2 \\ 7 \\ \hline 9 \end{array}$	$\begin{array}{r} 3 \\ 3 \\ \hline 6 \end{array}$	$\begin{array}{r} 1 \\ 4 \\ \hline 5 \end{array}$	$\begin{array}{r} 2 \\ 6 \\ \hline 8 \end{array}$
3.	$\begin{array}{r} 1 \\ 2 \\ \hline 3 \end{array}$	$\begin{array}{r} 4 \\ 5 \\ \hline 9 \end{array}$	$\begin{array}{r} 6 \\ 2 \\ \hline 8 \end{array}$	$\begin{array}{r} 5 \\ 1 \\ \hline 6 \end{array}$	$\begin{array}{r} 3 \\ 2 \\ \hline 5 \end{array}$	$\begin{array}{r} 6 \\ 4 \\ \hline 10 \end{array}$	$\begin{array}{r} 1 \\ 3 \\ \hline 4 \end{array}$	$\begin{array}{r} 2 \\ 5 \\ \hline 7 \end{array}$

1. These children have 3 plain goldfish and 2 with long wavy tails. How many fish have they in all?

2. The money to buy the goldfish was paid by 1 girl and 9 boys. How many children paid for them?

3. They had 3 big shells and 4 small shells. How many shells did they have?

4. Helen paid 5 cents for fish food and 5 cents for shells. How many cents did she pay in all?

5. There were 4 boys and 3 girls from the first grade who came to see the fish. How many children came?

6. They put 6 cups of sand into the bowl, and then 1 more. How many cups of sand were there in all?

7. They had 4 little red stones and 2 white stones. How many stones were there?

8. Joe put in 7 cups of water and May put in 1. How many cups did both put in?

9. They had 5 goldfish. Miss Day brought 4 more. How many goldfish did they have then?

10. They gave the goldfish 8 small pieces of food and 1 large piece. How many pieces did the fish have?

11. Dan brought 2 shells and Dick brought 4 shells. How many shells did both bring?

12. After they had 9 goldfish, Ann's mother gave them 1 more. How many fish did they have then?

13. On Monday 4 boys and 5 girls stayed after school to clean out the goldfish bowl. How many children stayed?

See if you know all these sums:

14.

2	6	4	1	5	1	2	9	4
$\frac{3}{5}$	$\frac{1}{7}$	$\frac{5}{9}$	$\frac{7}{8}$	$\frac{5}{10}$	$\frac{8}{9}$	$\frac{4}{6}$	$\frac{1}{10}$	$\frac{3}{7}$

15.

1	4	7	3	1	5	6	3	8
$\frac{9}{10}$	$\frac{2}{6}$	$\frac{1}{8}$	$\frac{2}{5}$	$\frac{6}{7}$	$\frac{4}{9}$	$\frac{2}{8}$	$\frac{4}{7}$	$\frac{1}{9}$

1. One day the children talked about their pets. The boys had 7 hens and the girls had 3 hens. How many hens did they have in all?

2. John had 2 white ducks and 5 brown ones. How many ducks did he have?

3. Tom had 4 gray rabbits and 6 white ones. How many rabbits did he have?

4. They had 7 yellow birds and 2 green ones. How many birds were there?

5. Ned had 6 kittens and Sam had 3. How many kittens did they both have?

6. Dick saw 5 black cats and 2 gray cats on the way to school. How many cats did he see?

7. Roy had 1 big white rat and 5 little rats. How many rats did he have?

8. May had 3 yellow chicks and 6 white ones. How many chicks did she have?

9. Jean told about 2 big dogs and 7 little ones. How many dogs were there in all?

10. Fred had 5 gray kittens and 3 white ones. How many kittens did he have?

11. Sam had 6 big rabbits and 4 little rabbits. How many rabbits did he have?

12. The class had 1 number lesson and 2 language lessons about pets. How many lessons did the class have about pets?

13. Dan saw 3 little white pigs and 5 little black pigs on his uncle's farm. How many pigs did he see?

14. Lee told about a hen that had 8 yellow chicks and 2 black ones. How many chicks did the hen have?

Cover the sums and then try to say them:

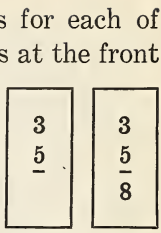
15.

3	1	4	2	3	2	3	2	3
7	2	6	5	6	8	1	7	5
10	3	10	7	9	10	4	9	8

16.

5	1	8	6	2	5	6	5	7
2	3	2	3	1	3	4	1	3
7	4	10	9	3	8	10	6	10

TOM made a number card like this for each of the 45 examples below. Tom looks at the front of each card. If he can give the answer, he puts the card in the "I Know" pile. If not, he puts it in the "I Don't Know" pile and studies it again.



Sometimes Betty holds up the cards, and Tom sees if he can tell her the right answers.

See if you can beat Tom in these additions:

1.	1	3	4	6	2	2	3	5	6
	1	3	1	2	1	4	1	2	4
2.	5	3	6	4	5	1	4	3	8
	1	2	1	2	3	9	4	7	2
3.	7	2	1	2	1	7	4	9	7
	1	2	5	7	3	2	3	1	3
4.	1	2	3	1	2	6	1	3	5
	4	6	4	8	5	3	7	6	5
5.	1	4	1	5	2	3	8	2	4
	2	5	6	4	3	5	1	8	6

Playing Circus

1. The boys had 7 big dogs and 8 little dogs. How many dogs did they have?

2. Bob's dog knew 4 tricks and Roy's knew 9. How many tricks did they both know?

3. There were 8 boys and 8 girls at the circus. How many children were there?

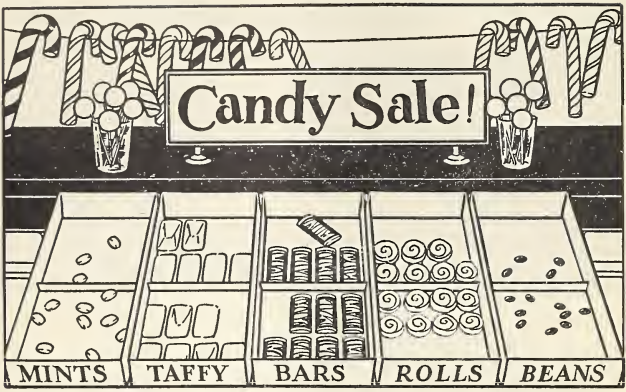
4. The boys had 9 white mice and 2 gray mice. How many mice did they have?

5. They sold a ticket to each of 4 boys and 8 girls. How many tickets did they sell?

Cover the sums and then try to say them:

6.

8	9	8	2	8	4	7	9	4
7	4	8	9	4	9	8	2	8
15	13	16	11	12	13	15	11	12



1. This is what was left after the candy sale. How many are 8 candy canes and 4 candy canes?

2. There are 6 candy apples in one glass and 5 in the other. How many candy apples are there?

3. How many are 9 mints and 3 mints?

4. How many pieces of taffy are there?

5. How many are 8 rolls and 7 rolls?

6. How many are 9 beans and 4 beans?

7. How many are 7 bars and 5 bars?

8. Joe bought 9 bars and 8 rolls. How many pieces of candy did he buy?

9. Amy had 6 red candy beans and 7 pink ones. How many beans did she have?

10. Nell had 5 nut bars and 6 plain candy bars. How many bars did she have?

11. The candy store had 7 pink candy dolls and 8 white ones. How many candy dolls were there?

12. Ida spent 2 cents for taffy and 9 cents for bars. How much did she spend?

13. Jack bought 7 pink mints and 6 white ones. How many mints did he buy?

14. The store was open 5 hours in the morning and 7 hours in the afternoon. How many hours was the store open that day?

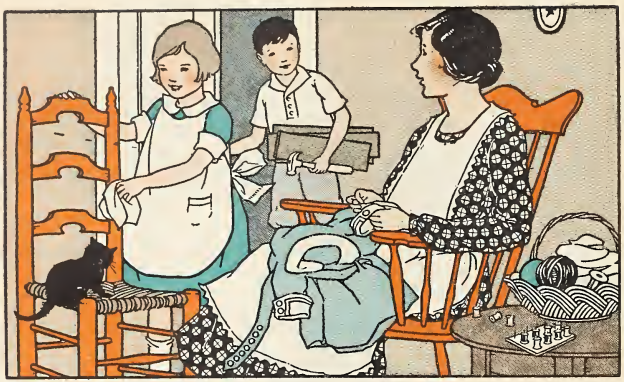
15. Ann paid 3 cents for a candy roll and 9 cents for a long candy cane. How much did she pay for both?

16. Roy had 6 red sticks of candy and 8 white ones. How many sticks of candy did he have?

17. There were 8 girls and 9 boys in the shop. How many children were there?

See if you know all these sums:

18.	8	5	4	7	9	8	4	5	8
	7	6	8	6	3	6	9	7	9
	15	11	12	13	12	14	13	12	17
19.	9	7	9	7	3	6	8	6	9
	4	5	8	8	9	5	4	7	2
	13	12	17	15	12	11	12	13	11



1. Mrs. Jenks sewed 7 buttons on the belt of Helen's new dress and 4 on the sleeves. How many buttons did she use?

2. She used 9 inches of white braid and 6 inches of red. How many inches of braid did she use?

3. She had 8 spools of silk thread and 3 spools of cotton thread. How many spools did she have?

4. She said, "Tom, buy 6 spools of black thread and 6 of white. If you buy this number, each spool will cost less." How many spools did Tom buy?

5. Tom took 7 minutes to go to the store and 7 minutes to come back. How many minutes is this?

6. Tom did 3 errands for his father and 8 for his mother. How many errands did he do?

7. Helen dusted 9 chairs in one room and 7 in another. How many chairs did she dust?

8. Helen washed 8 small plates and 6 large ones. How many plates did she wash?

9. Helen found 4 of the baby's toys on the table and 7 on the floor. How many toys did she find?

10. Mrs. Jenks baked 9 little white cakes and 5 pink ones. How many cakes did she bake?

11. Tom cracked 8 black walnuts and 5 butternuts for candy. How many nuts did he crack in all?

12. Tom cut some white candy into 9 pieces and some pink candy into 9 pieces. How many pieces of candy did he have?

13. Helen walked 5 blocks to the store and 8 blocks to take her music lesson. How far did she walk?

14. Tom used 6 long boards and 9 short ones to make a house for his dog. How many boards did he use?

Study and learn all these sums:

15.

4	6	3	5	6	9	5	9	8
7	9	8	9	6	5	8	9	6
11	15	11	14	12	14	13	18	14

16.

7	8	9	8	9	7	9	6	7
9	5	7	3	6	7	2	8	4
16	13	16	11	15	14	11	14	11

These 36 examples are harder than the 45 on page 12. See if you can give these sums:

1.	9	6	8	3	6	2	8	5	7
	4	6	5	9	7	9	7	6	5
2.	8	7	8	7	9	7	8	5	9
	6	7	8	6	5	4	9	7	6
3.	7	6	4	8	5	4	9	3	9
	9	8	9	3	9	8	7	8	3
4.	7	9	5	9	8	6	4	9	6
	8	9	8	2	4	9	7	8	5

IN THE examples above, the numbers to be added are written one over the other. To show that the sum of adding 9 and 4 is 13, we may write either

9 and 4 are 13	or	**9 + 4 = 13**

The sign + may be read either "**plus**" or "**and.**" It is the **sign of addition**; it means that we are to **add.**

The sign = is read either "**equals**" or "**are.**"

We usually think of + as meaning "and."

We usually think of = as meaning "are."

AS YOU already know, there are ten figures that are used in writing numbers in arithmetic. Here are the ten figures that we use:

0 1 2 3 4 5 6 7 8 9

The figure **0** is called **zero.** Zero means "**not any**" or "**nothing.**"

Adding zero to a number is the same as adding nothing to it.

$2 + 0 = 2$ $0 + 9 = 9$

The sum of 0 and any number is the number itself.

Mary had 5 pennies and Jane had none. How many pennies did both have?

Little Bopeep had no sheep. Afterward she found 8 sheep. How many sheep did she have then?

State the sums of

1. 3 and 0.
2. 0 and 4.
3. 5 and 0.
4. 0 and 9.
5. 0 and 6.
6. 8 and 0.
7. 6 and 0.
8. 0 and 7.
9. 9 and 0.
10. 0 and 2.
11. 0 and 0.
12. 4 and 0.

Add:

13.

3	5	0	0	8	0	7	0	1
0	0	7	1	0	0	0	4	0

1. There were 7 fruit trees and 5 shade trees in Grandmother's yard. How many trees were there?

2. Near the fence there were two rosebushes. One had 6 pink roses and the other had 8 red ones. How many roses were there in all?

3. June picked 4 pink roses and 7 red ones. How many roses did she pick?

4. Nell saw 8 bluebirds and 9 robins in the trees. How many birds did she see?

5. Grandmother had 6 black hens and 6 white ones. How many hens did she have?

6. There were 7 yellow chicks and 9 black ones. How many chicks were there?

7. In an old apple tree there were two nests. One had 6 little birds in it and the other had 5. How many little birds were there in both nests?

8. There were 4 birds in the small bird house and 8 birds in the big house. How many birds lived in the bird houses?

9. Nan counted 5 birds that were blue and 9 that were partly red. How many birds did she count?

10. Grandmother had 7 little ducks but no big ducks. How many ducks did she have?

11. Jane picked 3 yellow flowers and 8 blue ones. How many flowers did she pick?

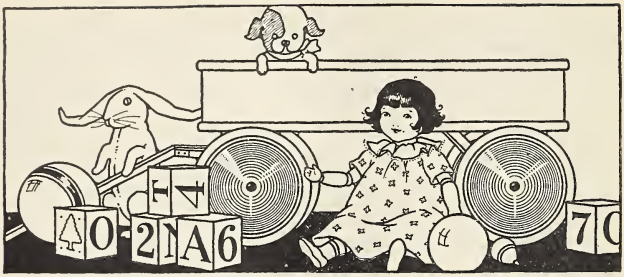
12. Sam dug dandelions. He found 4 in the front yard and 9 in the back yard. How many dandelions did he find?

13. There were 2 rabbits in a box and 8 in the pen. How many rabbits were there in all?

14. Jane found 9 pretty red stones and 6 white ones. How many stones did she find?

15. On the porch there were 3 white kittens and 7 gray ones. How many kittens were there?

16. The back porch has 9 steps and the front porch has 8. How many steps are there in all?



1. Ned paid 6 cents for a top and 7 cents for a ball. How much did he pay in all?

2. A doll costs 1 dollar, and a wagon costs 8 dollars. How much do both cost?

3. Amy had 9 cents and Dick had 7 cents. How many cents did they both have?

4. Tom paid 6 cents for one ball and 8 cents for another. How much did they both cost?

5. Jane paid 7 cents for beads and 4 cents for a string. How much did she pay in all?

6. Nell paid 9 cents for a small doll and 6 cents for its dress. How much did they both cost?

7. A toy rabbit costs 5 cents and a toy dog costs 8 cents. How much do both cost?

8. Dan paid 7 cents for marbles and 9 cents for blocks. How much did he pay in all?

Penny
1 cent

Nickel
5 cents

Dime
10 cents

Quarter
25 cents

1. What are the names of these coins?

2. How much is each coin worth?

3. Name something you can buy for a nickel; for a dime; for a quarter.

MARY was trying to save a dollar to buy a doll which she saw in the store window. A dollar is 100 cents. We write dollars and cents like this:

$ means **dollar** or **dollars**.
$2 means **two dollars**.
¢, or **ct.**, means **cent** or **cents**.
5¢, or **5 ct.**, means **five cents**.

The sign $ is always written **before** the dollars; the sign ¢ is always written **after** the cents. Learn this:

5¢ make 1 nickel.
10¢, or 2 nickels, make 1 dime.
25¢ make 1 quarter.
50¢ make 1 half dollar.

IT TAKES two figures to write any number from 10 to 99. Numbers like 25, 46, and 80 are called two-figure numbers.

In 25 the 2 shows the number of tens and the 5 shows the number of ones.

25 means 2 tens and 5 ones.
25 means 20 and 5.
50 means 5 tens and 0 ones.

In two-figure numbers the left-hand figure shows the number of tens; the right-hand figure shows the number of ones.

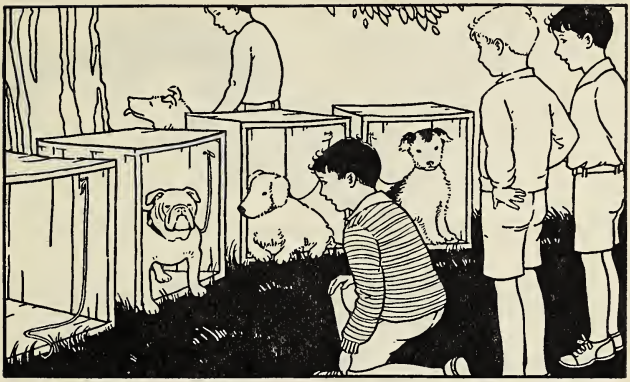
Where have you seen a two-figure number today? What did the left-hand figure show? What did the right-hand figure show?

Give the meaning of each of these numbers:

1. 19.	5. 56.	9. 92.	13. 18.	17. 35.
2. 37.	6. 74.	10. 29.	14. 81.	18. 46.
3. 40.	7. 23.	11. 10.	15. 60.	19. 66.
4. 71.	8. 68.	12. 65.	16. 99.	20. 15.

Write the numbers which show

21. 4 tens and 5 ones.
22. 8 tens and 0 ones.
23. 7 tens and 0 ones.
24. 3 tens and 1 one.
25. 1 ten and 0 ones.
26. 9 tens and 9 ones.



The Dog Show

THE boys are having a dog show. Each boy brought his dog. They are trying to see which is the best one. Each boy wants the prize for his dog.

1. Jim is taking his dog away. How many are left?

2. 1 dog from 4 dogs leaves how many dogs?

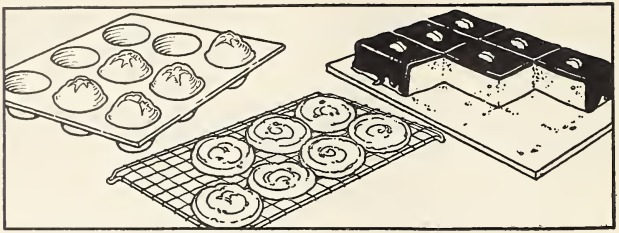
3. 1 boy from 4 boys leaves how many boys?

4. 1 from 4 leaves how many?

5. Sam brought 5 bones and Jim brought 3 bones. How many bones did both boys bring?

6. Jim took away 3 bones. How many were left?

7. 3 from 8 leaves how many?



1. There were 9 muffins in the pan. Joe took 4. How many muffins were left?

2. 4 from 9 leaves how many?

3. Mother baked 8 sweet rolls. She gave Mary 1. How many rolls were left?

4. 1 from 8 leaves how many?

5. Ann cut a cake into 9 pieces. Joe ate 3 pieces. How many pieces were left?

6. 3 from 9 leaves how many?

7. Nan had 6 cookies and gave Amy 2. How many cookies did Nan have left?

8. 2 from 6 leaves how many?

How many are left if you take

9. 1 from 8?	12. 6 from 9?	15. 1 from 4?
10. 3 from 9?	13. 4 from 9?	16. 5 from 8?
11. 7 from 8?	14. 3 from 8?	17. 2 from 6?

DOROTHY'S father gave her 9¢ on her birthday and told her that she could spend it in any way that she liked. She spent 7¢ for candy. How many cents did she have left?

Think, "7¢ from 9¢ leaves 2¢."
Write the numbers like this.
The answer is 2¢.
7 from 9 leaves 2.

9¢
7¢
2¢

When we take one number from another, we are subtracting.

We find " how many are left " by subtracting.

Copy this work and learn each answer:

1.	9	8	6	8	3	6	9	9	3
	7	5	2	3	2	4	2	8	1
	2	3	4	5	1	2	7	1	2
2.	4	9	8	9	8	9	4	9	2
	1	4	1	3	7	5	3	6	1
	3	5	7	6	1	4	1	3	1

See how well you can do these subtractions:

3.	8	6	9	4	9	3	9	3	8
	3	4	8	1	7	1	4	2	1
4.	9	4	8	9	2	8	9	6	9
	2	3	7	6	1	5	3	2	5

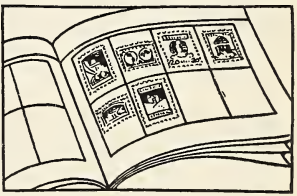
1. This is a game for 4 players, but there is only 1 boy. How many more players are needed?

2. 4 boys are how many more than 1 boy?

3. 1 and how many more are 4?

4. How many must I add to 1 to make 4?

5. This page in Roy's stamp book holds 8 stamps. Roy has 6 stamps. How many more does he need to fill the page?



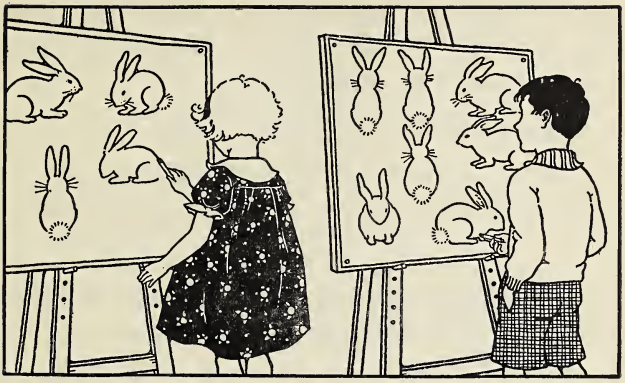
6. How many must I add to 6 to make 8? 6 and how many more are 8?

7. Carl has 4 stamps. How many more does he need to fill a page like the one above?

8. 4 and how many more are 8?

9. Betty has 9 pages to read. She has read 3 pages. How many more pages does she have to read?

10. 3 and how many more are 9?



1. How many rabbits has Nell drawn?

2. How many rabbits has Sam drawn?

3. Sam drew how many more rabbits than Nell?

4. 7 is how many more than 4?

5. What is the difference in the number of rabbits Nell and Sam have drawn?

6. Alice had 9¢ and Dorothy had 5¢. Alice had how many more cents than Dorothy?

7. 9 is how many more than 5?

8. What is the difference in the number of cents that Alice and Dorothy had?

9. Hal has $4 and Ned has $6. What is the difference in the number of dollars that they have?

AS WE have just seen, to find the difference between two numbers we subtract. The answer in subtraction is called the **difference.**

Finding the difference is subtraction.

When we subtract 5 from 9, the difference is 4. The difference is sometimes called the **remainder.**

Cover the differences with a piece of paper and see if you can give them all correctly. Learn them:

1.	7	9	8	9	8	4	7	6	5
	2	3	4	6	7	2	6	3	4
	5	6	4	3	1	2	1	3	1
2.	9	8	5	8	6	7	7	9	5
	5	6	1	2	5	4	5	1	3
	4	2	4	6	1	3	2	8	2
3.	7	9	5	8	6	6	8	9	7
	1	4	2	3	4	1	5	2	3
	6	5	3	5	2	5	3	7	4

See how quickly you can give the remainders:

4.	7	6	8	7	8	5	7	9	7
	5	3	5	3	6	4	2	1	6
5.	8	6	4	6	5	8	5	7	5
	4	5	2	1	2	7	1	4	3

We subtract to answer these questions:

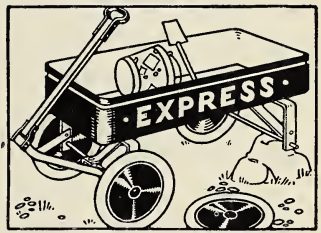
How many are left?
How many more are needed?
What is the difference?

1. John caught 8 fish last Saturday morning. He let 2 small ones go. How many fish were left?

2. Ida found 7 tulips in the garden. She picked 5 of them. How many tulips were left?

3. Harry had $8 in the bank. He drew out $3. How much did Harry have left in the bank?

4. Make up a problem about this picture of a cart with 1 wheel gone.



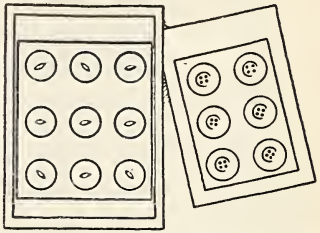
5. If you have 3, how many more are needed to make 4?

6. A candy rabbit costs 9¢. Dick has 5¢. How much more does he need?

7. There are 8 boys and 6 apples. Each boy wants an apple. How many more apples are needed?

8. Norman is 5 feet tall and his brother Walter is 3 feet tall. What is the difference in their heights?

9. Make up a problem about this picture of two cards of buttons.



10. What is the difference between 9 buttons and 6 buttons? between 9¢ and 6¢?

11. A week has 7 days. After 3 days, how many days are left in the week?

12. Joe wants 9¢ to buy a flag. He has 2¢. How many more cents does he need?

13. Lucy is 9 years old and Jane is 8. What is the difference in their ages?

14. Carl had 7 marbles and Tom had 2 marbles. How many more marbles did Carl have than Tom?

15. Sam had 7 apples. He fed his rabbit 2 apples. How many apples were left?

16. Little Bopeep lost 9 sheep. She found 7. How many more did she need to find?

17. John has $6 in the bank. Bert has $3. John has how much more than Bert?

18. There were 5 kittens in a basket. When 2 of them jumped out, how many were left?

The 36 Easy Subtraction Facts

WHEN you wish to write answers without copying the numbers, take a piece of paper and place it just below the first row of examples. Write the answers to the first row at the top of the paper.

Then fold the paper under about an inch, and write the answers to the second row in the same way.

You should have as many rows of answers as there are rows of examples.

Number each row or each example in the same way it is numbered in the book.

You learned these 36 easy subtraction facts on pages 25 to 32. Write the answers on folded paper:

1.	2	6	4	6	8	3	9	8	4
	1	3	2	1	4	1	5	2	1
2.	5	3	7	4	7	5	8	6	9
	1	2	1	3	2	3	1	5	7
3.	9	5	9	7	9	7	8	7	8
	1	2	4	3	6	5	3	6	5
4.	9	8	6	9	7	8	5	6	9
	2	7	4	3	4	6	4	2	8

1. The toy shop had 11 airplanes and sold 4. How many airplanes were left?

2. An airplane costs 14¢. Dick has 9¢. How many more cents does he need?

3. Joe is 4 feet tall. His airplane flew 12 feet above the ground. This was how much higher than his head?

4. Dan's airplane flew 18 feet and Ned's flew 9. How much farther did Dan's fly than Ned's?

5. Airplanes cost 14¢, but Jim bought Ned's for 8¢ less than this. How much did Jim pay?

6. There are 16 boys and 7 girls on the playground. How many more boys than girls are there?

7. Ann pushed the swing 13 times and Lucy pushed it 6 times. How many more times did Ann push the swing than Lucy?

8. Roy's kite flew 12 minutes and Ben's flew 6. How much longer did Roy's fly than Ben's?

9. Lee had 13¢. He paid 7¢ for a kite. How much did he have left?

10. Mary skated 12 blocks and Nell skated 9. How much farther did Mary skate than Nell?

11. An airgun costs 17¢. Will has 9¢. How many more cents does he need?

12. Sam had 14 marbles and Dick had 6. How many more marbles did Sam have than Dick?

13. Sue skated 16 minutes and Ella skated 9. How much longer did Sue skate than Ella?

14. John had 12 marbles. After 3 marbles rolled down a rat hole, how many did he have left?

15. Peter paid 14¢ for a bow and arrows and 5¢ for a target at which to shoot. How much more did the bow and arrows cost than the target?

See if you know all these answers:

16.	17	11	18	12	14	13	12	14	16
	8	4	9	6	5	7	9	8	9
	9	7	9	6	9	6	3	6	7
17.	17	11	14	12	13	12	14	16	12
	9	7	9	4	6	3	6	7	8
	8	4	5	8	7	9	8	9	4

1. John slept 9 hours and his little sister slept 11 hours. How much longer did she sleep than John?

2. Ann cooked 12 eggs, and the family ate 7. How many eggs were left?

3. It took Kate 13 minutes to get ready for school. It took Jim 9 minutes to get ready. How much longer did it take Kate than Jim?

4. Ellen has 11 buttons on her dress. She can reach only 8. How many does she have to let her mother button?

5. It takes 13 minutes to walk to school and 5 minutes to ride. How much longer does it take to walk?

6. John walks 11 blocks to school. May walks 5. How much farther does John walk than May?

7. May's bird book had 16 pages, but her baby sister tore out 8. How many pages were left?

8. Fred wanted a pencil box that cost 15¢. His mother gave him 9¢. How much more did he need?

9. Nell waited 11 minutes for Jane and 3 minutes for Lucy. How much longer did she wait for Jane than for Lucy?

10. Lunch costs 15¢. Lucy has 6¢. How many more cents does she need?

11. Joe has 14¢ for carfare. Nell has 7¢. Joe has how much more than Nell?

12. Tom and May got to the corner 11 minutes before car time. They have waited 2 minutes. How much longer do they have to wait?

13. The bell rang 15 minutes before school. John took 6 minutes to find his books. How many minutes were left?

14. Ned wants a ruler which costs 13¢. He has 4¢. How much more does he need?

15. It takes Jane 15 minutes to wipe the breakfast dishes. She has already worked 7 minutes. How much longer will she have to work?

16. Jim had 12¢. He paid 8¢ for carfare. How much did he have left?

Cover the answers and see how many you can give correctly. Practice until you know them all:

17.	15	10	11	12	10	11	13	10	15
	6	5	9	7	2	8	4	3	9
	9	5	2	5	8	3	9	7	6
18.	13	11	10	11	15	10	14	11	10
	5	2	8	5	7	6	7	3	9
	8	9	2	6	8	4	7	8	1
19.	10	13	10	13	11	15	10	16	12
	7	8	1	9	6	8	4	8	5
	3	5	9	4	5	7	6	8	7

1. There were 13 pieces of dry wood in the woodbox. The boys took 4 pieces to start the bonfire. How many pieces were left?

2. They found 12 old boxes in the shed and burned 7 of them. How many boxes were left?

3. There were 16 sticks which Grandfather had used for the beans in his garden. They burned 9 of them. How many sticks were left?

4. Lucy found 11 old papers under the table. She burned 7. How many papers were left?

5. In a wastebasket there were 13 papers. Amy took 8. How many papers were left?

6. Fred pulled up 15 cornstalks and Will pulled up 7. How many more did Fred pull than Will?

7. Jane brought 11 armfuls of cornstalks and Ned brought 4. How many more did Jane bring than Ned?

8. Ada found 13 old boxes in the barn. She brought 5 for the bonfire. How many boxes were left?

9. Joe raked up 11 baskets of leaves and Roy raked up 3. How many more did Joe have than Roy?

10. There were 14 baskets of leaves. Dan put 8 on the fire. How many were left?

11. It took 13 minutes to find the things to burn and 8 minutes to start the fire. How much longer did it take to find the things than to start the fire?

12. There were 12 boys and 5 girls. How many more boys were there than girls?

13. There were 17 children, but 9 went home early. How many children were left?

14. May stayed 15 minutes and Lucy stayed 6. How much longer did May stay than Lucy?

15. May's father stayed 12 minutes and her mother stayed 3. How much longer did her father stay than her mother?

16. The people on Hill Street had 8 bonfires on Friday and 15 on Saturday. How many more bonfires did they have on Saturday than on Friday?

Subtract, writing the answers on folded paper:

1.	10	14	11	10	12	10	14	10	12
	5	8	2	8	5	1	7	9	4
2.	12	10	14	10	11	13	11	14	12
	6	3	5	2	5	6	3	9	7
3.	13	15	13	11	13	12	18	15	13
	4	7	8	4	7	8	9	8	9
4.	12	13	10	16	11	14	16	11	12
	3	5	6	8	9	6	9	7	9
5.	15	17	10	16	11	15	17	11	10
	9	8	4	7	8	6	9	6	7

THUS far we have written the subtraction facts in columns. Besides this way of writing them, there are these three other ways:

5 from 10 is 5	**10 less 5 is 5**	**10 − 5 = 5**

The sign − may be read either "**minus**" or "**less.**" It means that we are to **subtract.**

We read 10 − 5 as "10 minus 5" or as "10 less 5."

1. In an oak tree there were 6 big squirrels and 11 little ones. How many more little squirrels than big squirrels were there?

2. Bunny Squirrel found 17 chestnuts. He ate 9 for his dinner. How many nuts were left?

3. He also found 16 walnuts and 7 acorns. How many more walnuts than acorns did he find?

4. There were 11 little squirrels, but 5 of them ran away. How many were left?

5. Laddie barked at 12 squirrels, and 4 of them ran into a hole. How many were left?

6. Frisky found 15 nuts yesterday and 9 today. How many more did he find yesterday than today?

7. Father Squirrel hid 13 nuts in a hole in a tree and 7 nuts in a log. How many more nuts did he hide in the tree than in the log?

NED earned 9¢ by weeding the flower garden for his mother. He put the money in his bank and did not spend any. How many cents did Ned have?

"Not any" means **zero**, or **nothing.**

Ned had 9¢.
He spent 0¢.
0 from 9 is 9.
The answer is 9¢.

9
0
9

Taking zero from any number leaves the number itself.

0 from 1 is 1 — 0 from 6 is 6
0 from 5 is 5 — 0 from 8 is 8

1. Will spelled 6 words in a lesson. He missed none. How many words were right?

2. Little Bopeep had 9 sheep. She lost none. How many sheep were left?

3. Bob has 4 toy cars and Dan has no cars. How many more cars has Bob than Dan?

4. Ned's baseball team made 7 runs. John's team made 0. How many more runs did Ned's team make than John's?

5. Subtract the zero in each of these examples:

1	4	7	2	5	8	3	6	9
0	0	0	0	0	0	0	0	0

WILL went to the store for his mother and bought 3 eggs. On the way home he fell down and broke 3 eggs. How many eggs were left?

3 eggs from 3 eggs is 0 eggs.

We can say "There were none left," or "There were zero eggs left."

3
3
0

Any number taken from itself leaves zero.

2 from 2 is 0 4 from 4 is 0 9 from 9 is 0

---

1. Mr. Gray had 8 tops in his toy shop. He sold 8 of them. How many were left?

2. Lee had 6 rabbits. He sold 6. How many rabbits did he have left?

3. Joe had 7¢. He paid 7¢ for a ball. How much did he have left?

4. Bunny Squirrel had 3 walnuts and 3 acorns. How many more walnuts than acorns did he have?

5. Peter is 2 years old and Carl is 2 years old. Peter is how many years older than Carl?

6. A candy cane costs 5¢. Ann has 5¢. How much more does she need to buy the cane?

7. Subtract and give the answers:

2	5	4	9	1	0	6	8	7
2	5	4	9	1	0	6	8	7

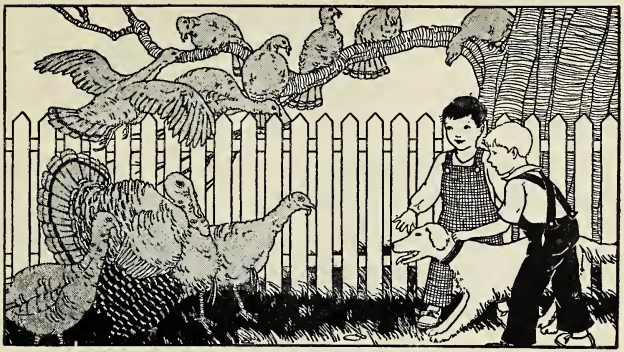
> **Add when you see the sign +.**
> **Subtract when you see the sign −.**

Give the answers:

1. 4¢	2. 9 caps	3. 6 eggs	4. 3 pans
+ 8¢	+ 9 caps	+ 5 eggs	+ 9 pans
¢	caps	eggs	pans
5. 14 boys	6. 11 bats	7. 12 balls	8. 18 hens
− 7 boys	− 6 bats	− 8 balls	− 9 hens

Copy these examples and write the answers:

9. 13	10. 9	11. 17	12. 7	13. 12
− 5	+ 7	− 9	+ 4	− 9
14. 8	15. 14	16. 8	17. 15	18. 8
+ 5	− 6	+ 0	− 8	+ 7
19. 14	20. 7	21. 8	22. 16	23. 9
− 5	+ 7	+ 9	− 9	+ 3
24. 13	25. 7	26. 10	27. 11	28. 8
− 8	+ 9	− 3	− 7	+ 8
29. 11	30. 9	31. 13	32. 5	33. 17
− 5	+ 6	− 4	+ 9	− 8



JOE and Dan were visiting their grandfather at the farm. Joe found 9 eggs and Dan found 8. How many eggs did both boys find?

First think, "This is a **9 and 8 addition** problem."

Then write it like this and add.

The answer is 17.

$$\begin{array}{r} 8 \\ +\ 9 \\ \hline 17 \end{array}$$

Dan counted 10 turkeys in the barnyard. When Laddie barked, 7 flew up into a tree. How many turkeys were left?

Think, "This is a **7 from 10 subtraction** problem."

Write it like this and subtract.

The answer is 3.

$$\begin{array}{r} 10 \\ -\ 7 \\ \hline 3 \end{array}$$

Topknot had 16 chicks and Blackie had 9. To find how many more Topknot had, do you add or subtract?

1. One day 7 boys and 6 girls hunted for a turkey's nest. How many children were there in all?

2. The nest had 9 eggs in it. They gave 9 to a hen. How many eggs were left?

3. A hen had 5 little turkeys and 7 chicks. How many little ones did she have?

4. Topknot had 9 little chicks and Brownie had 8. How many chicks did both have?

5. There were 12 hens in the hen yard. One night the foxes took 5. How many hens were left?

6. Hal caught 6 grasshoppers and Ned caught 8. How many did both catch?

7. Nell saw 8 white butterflies and 4 red ones. How many butterflies did she see?

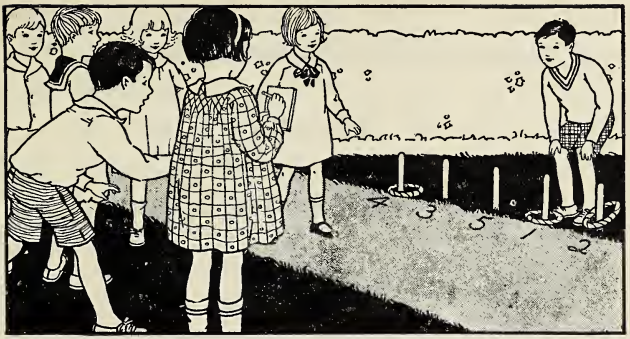
8. Joe's bird house had 14 birds in it. When 9 flew away, how many were left?

9. Bunny Squirrel found 6 nuts and Frisky found 9. How many did both find?

10. Mother Rabbit had 11 carrots. Peter ate 3. How many carrots were left?

11. Amy counted 7 squirrels in one tree and 8 in another. How many squirrels did she count?

12. Mother Squirrel had 10 nuts and Bunny Squirrel had 6. How many more nuts did Mother Squirrel have than Bunny?



Ring-Toss Game

IN THIS game each player has three turns. If a ring misses all the stakes, it counts zero. Joe has thrown his three rings.

Ella wrote the numbers in a column like this and then added.

2
1
4
7

As she added the numbers Ella said, "4 and 1 are 5; 5 and 2 are 7."

She wrote the 7 for Joe's score.

Add the columns to find who won this game:

Ned	Sue	Bob	Ann	Roy	Jim	May
1	0	4	0	2	1	2
4	2	0	3	4	2	3
1	3	2	5	3	2	3

Copy these numbers carefully and add:

1.	4	5	3	1	3	1	0	7	0
	3	0	2	6	1	0	4	1	6
	2	3	4	0	3	7	0	0	2
2.	0	5	1	2	4	3	5	6	2
	7	2	8	0	3	0	1	1	2
	0	2	0	6	1	0	1	2	5
3.	0	3	1	4	9	0	4	3	6
	2	0	0	2	0	4	1	2	0
	1	5	8	1	0	2	0	3	1
4.	7	0	8	3	6	4	1	0	3
	0	9	0	5	2	4	5	6	3
	2	0	1	1	0	1	0	3	0
5.	2	1	5	3	5	2	4	2	3
	6	5	4	0	3	1	5	3	1
	0	1	0	6	0	3	0	2	5
6.	0	2	1	1	2	1	0	7	0
	5	6	1	1	7	4	8	0	3
	3	0	4	6	0	2	1	2	0
	1	0	3	1	0	2	0	0	4

1. Joe sharpened 2 yellow pencils, 1 white pencil, 4 red pencils, and 2 green ones. How many pencils did he sharpen?

2. Dan had 3 dimes, 1 nickel, and 4 pennies. How many coins did he have?

3. Lee spent 5¢ on Saturday, 1¢ on Sunday, nothing on Monday, and 2¢ on Tuesday. How much did he spend in the four days?

4. Ella's father gave her 4 letters to mail, her sister gave her 2 letters, and her mother gave her 3. How many letters did she have in all?

5. Ann spent 5¢ for milk, 2¢ for candy, and 2¢ for gum. How much did she spend in all?

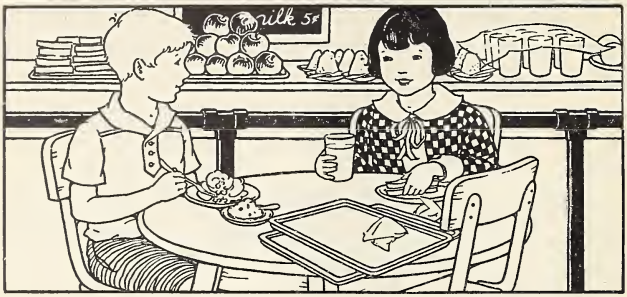
6. Dorothy saw 3 robins, 5 sparrows, no wrens, and 1 bluebird. How many birds did she see?

7. May has 4 red flowers, 1 yellow one, 3 white ones, and no blue ones. How many flowers has she?

8. In Nan's workbasket there are 2 spools of black thread, 4 of white, and 1 of red. How many spools of thread are there in the basket?

9. Marjorie saw 1 robin, 4 bluebirds, and 3 blackbirds in a tree. How many birds were there in all?

10. Yesterday Ida picked 2 roses, 2 pinks, and 4 daisies to take to school. How many flowers did she pick to take to school?



SUE had milk and a sandwich at the school lunch room yesterday noon. The milk cost 5¢ and the sandwich cost 11¢.

In finding how much her lunch cost, Sue said, "11 + 5 = 16." She wrote 16. Her lunch cost 16¢.

Sue	Hal
5	12
11	13
16	25

Hal paid 12¢ for a salad and 13¢ for pudding.

In finding how much his lunch cost, Hal said, "3 + 2 = 5." He wrote 5. He then said, "1 + 1 = 2," and wrote 2. Hal's lunch cost 25¢.

Find how many cents each child pays for lunch:

1. Ben	2. Nell	3. Dan	4. Joe	5. May	6. Ada
10	11	13	12	10	11
3	4	6	11	15	15

Apple, 4¢	Meat, 15¢	Salad, 12¢
Cookie, 3¢	Milk, 5¢	Sandwich, 11¢
Ice cream, 10¢	Pudding, 13¢	Soup, 6¢

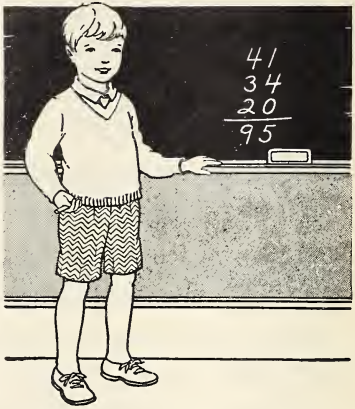
Look in the list above for the prices, and then find the cost of these lunches:

1. Helen: salad and a glass of milk.
2. Bob: a sandwich and a bowl of soup.
3. Roger: ice cream and a cookie.
4. Will: salad and an apple.
5. Roy: ice cream and a sandwich.
6. Dick: salad and meat.
7. Carl: a bowl of soup and pudding.
8. Ned: a sandwich and pudding.
9. May: a sandwich and an apple.
10. Tony: soup and salad.
11. Nell: a sandwich and a glass of milk.

Find these sums:

12.	18	50	31	20	54	30	19	62
	61	30	47	78	43	26	80	25
13.	46	62	40	37	58	23	47	37
	43	14	59	32	20	65	21	10

NED has this problem at the board: "Yesterday Tom sold 41 papers, Lee sold 34, and Joe sold 20. How many papers did they all sell?"



As Ned adds he says, "0 and 4 are 4; 4 and 1 are 5."

He writes the 5 under the 0.

He then says, "2 and 3 are 5; 5 and 4 are 9."

He writes the 9 under the 2.

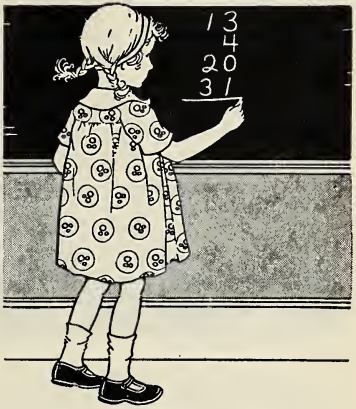
The sum is 95. The boys sold 95 papers.

Read Ned's problem over again, and be sure that you understand how he added.

Copy these numbers carefully and add:

1. 21	2. 30	3. 11	4. 50	5. 42	6. 31
42	20	20	14	13	2
34	29	58	34	43	63
7. 50	8. 57	9. 33	10. 6	11. 30	12. 76
4	10	42	50	6	10
22	21	11	23	11	12

MAY has this problem at the board: "Mrs. Day bought Christmas cards at four stores. She bought 13 cards at one store, 4 at another, 20 at another, and 31 at the fourth. How many cards did she buy?"



In writing the numbers May puts the 4 in the right-hand column.

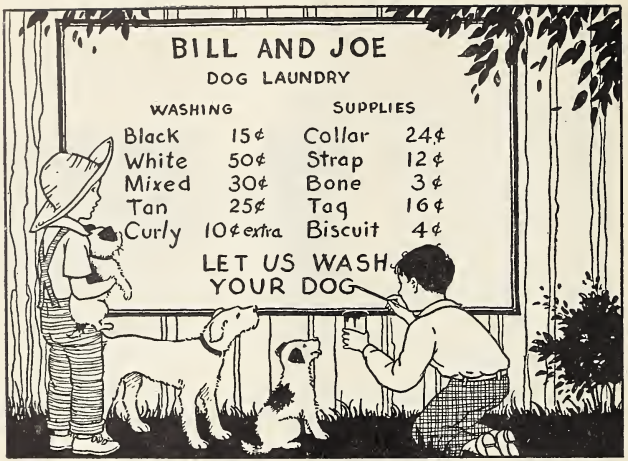
Tell how May adds the four numbers.

What is her answer?

Why should you always make straight columns when writing numbers for adding?

Copy these numbers carefully and add:

1.	2.	3.	4.	5.	6.
21	4	70	60	5	42
21	20	10	5	30	5
5	2	4	3	31	1
32	10	5	11	2	30
7.	**8.**	**9.**	**10.**	**11.**	**12.**
63	10	2	20	14	4
2	22	10	3	10	80
4	10	20	30	11	3
20	17	46	45	53	12



Here is what Bill and Joe earned on different days. Add the columns, writing the sums on folded paper:

1.	2.	3.	4.	5.	6.
10	30	12	10	10	10
50	50	10	50	24	12
24	16	24	16	10	30
15	3	12	12	25	25

7.	8.	9.	10.	11.	12.
3	3	10	3	12	50
10	12	30	24	30	10
12	3	12	30	12	4
30	10	24	30	4	30
24	50	3	12	30	4

The Flag Store

THE day before the Fourth of July this store had 76 flags. The children bought 45 flags for the parade. How many flags were left?

This is a subtraction problem. Write the larger number first.

Write the smaller number under the larger one, as shown at the right.

76
45
31

To subtract, think "5 from 6 is 1." Write the 1 under the 5.

Then "4 from 7 is 3." Write the 3 under the 4.

The difference is 31. There were 31 flags left.

1. The circus had 79 animals. There were 60 animals in the parade. How many animals were left at the circus grounds?

2. Jane bought a box of 96 apples. At her Halloween party they ate 43. How many apples were left in the box?

3. On Saturday Ned earned 98¢ and Will earned 20¢. How much more did Ned earn than Will?

4. Ann weighs 50 pounds and Sue weighs 40. Find the difference in their weights.

5. At the fruit store there were 96 oranges in one box and 60 in another. How many more oranges were there in the first box than in the second?

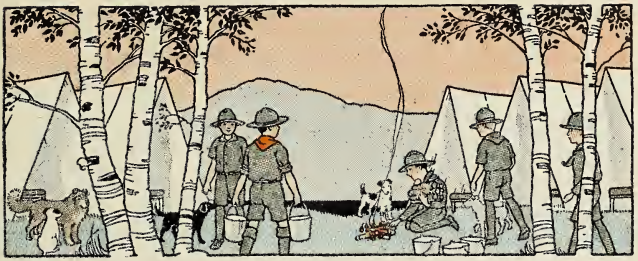
6. Bert has 89 stamps and Hal has 65. How many more stamps has Bert than Hal?

7. Jack had 23 rabbits. He sold 12 of them. How many rabbits did he have left?

8. At a football game there were 87 boys and 27 girls. How many more boys than girls were there at the game?

9. There were 78 children at the school picnic, but 38 went home early. How many were left?

10. Ned and Tom counted the blackbirds in a cornfield. Ned saw 59 blackbirds and Tom saw 39. How many more birds did Ned see than Tom?



Meaning of Endings

1. In the picture find five "3 and 2" problems.
2. What is always the sum of 3 and 2?
3. Read these examples:

2	2	2	2	2	2	2	2
3	13	23	33	73	63	83	53
5	15	25	35	75	65	85	55

4. In Ex. 3, why is there a 5 in each sum?

Give the sums rapidly in these examples:

5.	7	7	7	7		8.	6	6	6	6
	1	11	21	51			3	23	33	13
6.	5	5	5	5		9.	2	2	2	2
	4	14	34	24			12	32	92	22
7.	3	3	3	3		10.	8	8	8	8
	13	43	33	23			21	61	11	31

IF WE add 24 and 3, the sum will be 27. This sum ends in 7. If we add 34 and 3, the sum will be 37. This sum ends in 7.

If we add 3 to any number ending in 4, the sum will end in 7.

3	3
24	34
27	37

If two numbers end the same as two others, the sums have the same endings.

The sum of 14 and 5 is 19, the sum of 24 and 5 is 29, the sum of 34 and 5 is 39, and so on.

Give the answers for each of these pairs:

1. $14+3$.	**2.** $12+6$.	**3.** $15+4$.	**4.** $22+3$.
$44+3$.	$32+6$.	$25+4$.	$32+3$.

Add rapidly:

5.	3	1	5	3	3	1	8	1	9
	12	11	10	11	15	14	10	13	10
6.	2	3	5	7	2	4	1	2	1
	15	10	11	10	11	10	12	14	10
7.	4	6	2	4	1	4	1	4	1
	12	11	10	11	16	14	17	13	18
8.	5	2	3	6	1	3	5	2	7
	13	17	13	10	15	16	12	16	12

See how quickly you can give all these sums:

1.	5	1	6	3	3	3	1	5	2
	33	37	13	21	32	25	30	21	35
2.	5	3	6	4	6	2	5	2	1
	22	23	31	24	21	26	31	20	23
3.	2	1	9	3	6	2	3	2	1
	25	21	30	36	22	31	26	36	24
4.	4	3	2	1	2	1	4	1	9
	25	20	27	34	30	35	30	26	20
5.	8	3	1	7	4	5	3	6	1
	20	35	38	30	21	30	22	20	33
6.	20	33	27	34	22	32	34	31	33
	7	6	1	4	7	1	3	1	4
7.	31	35	32	31	21	24	33	20	32
	7	4	5	3	7	2	3	1	7
8.	30	25	31	23	30	36	22	20	32
	6	1	8	5	8	1	4	5	4
9.	22	23	20	28	37	34	30	21	31
	1	4	4	1	2	2	3	2	4

1. Jane made a book with 22 white pages and 6 pink ones. How many pages were there in her book?

2. Fred's book had 20 white pages and 8 yellow ones. How many pages were there in Fred's book?

3. Jane put 11 pictures on one page and 7 on another. How many pictures were there in all?

4. Fred found 14 pictures of bears and Jane found 5. How many pictures of bears did they both find?

5. Fred paid 12¢ for paper and 7¢ for paste. How much did he pay in all?

6. Jane put 6 flower pictures on one page and 23 on another. How many flower pictures did she use?

7. Fred worked 8 minutes and Jane worked 21. How many minutes did they both work?

8. How many are 5 pictures and 24 pictures?

Add upward without pencil or paper:

1.	3	1	5	3	6	2	8	2
	8	4	9	2	4	3	4	8
	4	7	1	9	9	9	6	5
2.	9	2	3	5	7	2	4	1
	8	6	6	8	5	6	7	4
	2	9	4	3	5	5	3	8
3.	2	1	4	6	3	8	2	7
	6	3	9	3	8	5	1	5
	8	7	4	8	6	6	9	7
4.	1	6	1	5	2	3	7	1
	8	7	9	7	9	5	7	8
	9	5	9	6	8	8	4	7
5.	3	4	2	4	1	7	3	8
	9	9	8	7	5	3	7	1
	7	5	8	8	9	9	7	5
6.	3	2	5	2	1	1	3	5
	4	6	1	5	1	3	4	3
	9	2	6	6	7	9	9	9
	2	8	7	6	9	6	3	1

1. In one school bus there were 6 girls, 4 boys, and 2 teachers. How many people were there in all?

2. Bunny Squirrel ate 5 nuts, Frisky ate 4, and Furry ate 7. How many nuts did they all eat?

3. The boys counted 5 horses, 3 cows, and 9 pigs in the barnyard. How many animals did they count?

4. The mailman left 8 letters, 3 post cards, and 5 papers at Mr. Jay's house. How many pieces of mail did he leave?

5. Jack has 2 glass marbles, 7 striped marbles, and 5 plain marbles. How many marbles has he?

6. Ann has 6 paper dolls, 2 china dolls, and 3 rag dolls. How many dolls has she?

7. Dorothy has 6 little plates, 6 little cups, and 6 little saucers. How many little dishes has she?

8. The balloon man sold 7 red balloons, 5 yellow ones, and 6 green ones. How many balloons did he sell in all?

9. On one train Joe counted 5 cars of sheep, 8 cars of pigs, and 6 cars of cattle. How many cars of animals did he count?

10. Carl saw 7 airplanes, Tom saw 4, and Hal saw 5. How many did they see in all?

11. Joe has 4 white rabbits, 7 black ones, and 8 gray ones. How many rabbits has he in all?

Review Questions

1. What does the sign + mean?

2. Which is larger, $4 + 5$ or $6 + 2$?

3. What does the sign = mean?

4. What is the name of the answer in addition? in subtraction?

5. What is the sum of 0 and 7?

6. What is the minus sign?

7. How much is 11 less 6?

8. What is the difference between 9 and 3?

9. How much more is 11 than 2?

10. How much must you add to 6 to make 10? to make 12? to make 15?

11. Which is more, 2 dimes or 19¢?

Give these answers:

12.	8	7	13	11	7	16	5	4
	+5	+9	−6	−4	+5	−8	+9	+7
13.	15	8	9	17	6	9	15	14
	−6	+6	+3	−8	+7	+6	−8	−5
14.	5	7	10	13	8	16	5	12
	+7	+4	−2	−4	+7	−9	+8	−3

Find the sums:

1. 6	2. 9	3. 7	4. 8	5. 9	6. 8
7	8	4	5	6	3

Find the differences:

7. 15	8. 16	9. 11	10. 13	11. 14	12. 18
7	9	3	5	7	9

Find the answers:

13. 5	14. 7	15. 11	16. 17	17. 8	18. 10
+6	+3	−4	−9	+4	−6
19. 7	20. 13	21. 16	22. 2	23. 14	24. 8
+9	−6	−8	+9	−8	+6

Add these numbers:

25. 34	26. 76	27. 21	28. 30	29. 41	30. 20
54	12	3	60	38	47

Subtract:

31. 34	32. 87	33. 65	34. 49	35. 28	36. 80
10	32	20	17	5	40
37. 97	38. 48	39. 76	40. 64	41. 37	42. 65
15	21	16	13	20	45

CHAPTER TWO

COMPLETION OF ADDITION AND SUBTRACTION

I. PREPARATION FOR CARRYING

Adding by Endings

IF WE add 28 and 7, as here shown, the sum is 35. The tens' figure in the sum is larger by 1 than the tens' figure in the 28.

7
28
35

If we add 7 to any number ending in 8, the sum will end in 5 and **the tens' figure in the sum will be larger by 1.**

Watch the tens' figure in these cases:

8	4	4	4	5	5	6	9	7
17	9	19	49	17	27	54	72	63
25	13	23	53	22	32	60	81	70

First state the tens' figure in the sum; then give the sum:

1. 8	2. 8	3. 8	4. 7	5. 9	6. 8
16	26	56	19	15	24
7. 9	8. 9	9. 8	10. 8	11. 9	12. 7
38	48	42	32	31	34

Add rapidly without pencil or paper:

1.	6	7	4	5	7	9	4	9	7
	16	13	18	26	27	25	28	24	16
2.	4	7	8	3	5	3	6	9	7
	16	17	13	29	25	28	24	21	26
3.	3	5	9	7	6	8	4	8	9
	17	19	17	25	29	25	26	23	27
4.	2	7	5	9	8	5	6	7	6
	18	14	15	26	22	29	27	29	25
5.	17	19	15	23	28	22	28	27	29
	4	3	8	9	8	9	5	8	9
6.	18	16	14	28	27	28	29	28	29
	3	5	9	2	4	6	8	9	2
7.	19	18	15	11	14	19	17	13	27
	1	7	6	9	6	8	6	9	3
8.	18	19	12	15	16	14	19	18	29
	6	2	8	7	9	8	6	8	1
9.	18	23	12	18	19	26	24	29	28
	9	7	9	5	9	6	7	4	7

1. To 17 add, in turn, 5, 8, 3, 9, 6, 4, 7.
2. To 16 add, in turn, 4, 7, 6, 9, 5, 8, 0.
3. To 19 add, in turn, 2, 5, 1, 8, 3, 7, 6, 9.
4. To 18 add, in turn, 7, 4, 9, 2, 5, 8, 6, 3.

Add rapidly without pencil or paper:

5.	6	4	7	8	5	8	5	6
	9	9	8	7	9	8	9	9
	5	8	9	8	7	5	9	8
6.	7	3	6	6	8	9	4	9
	5	9	8	7	8	7	7	6
	9	8	7	9	8	7	9	6
7.	4	8	9	7	5	3	5	7
	9	9	4	8	8	9	9	5
	9	8	9	8	9	9	6	8
8.	9	8	9	8	9	7	9	7
	6	5	5	7	8	9	9	6
	9	7	6	6	9	4	7	9
9.	6	9	7	9	8	9	2	8
	9	9	9	6	9	9	9	6
	9	3	9	7	9	9	9	8

1. The Lincoln School sent presents to a children's home. In one box there were 7 drums, 9 horns, and 4 dolls. How many toys were there in that box?

2. The teachers brought 5 boxes, the boys brought 8 boxes, and the girls brought 5 boxes. How many boxes did they all bring?

3. Ned brought 8 tin soldiers, Jim brought 5, and Hal brought 7. How many soldiers did they bring?

4. They packed 9 rubber balls, 7 cloth balls, and 5 leather balls. How many balls did they pack?

5. They sent 9 red books, 6 blue books, and 5 green books. How many books did they send?

Add upward without pencil or paper:

1.	6	7	8	3	9	7	6	7
	9	6	8	4	6	9	8	9
	7	5	9	9	5	5	7	9
	3	9	3	6	8	7	6	4
2.	5	6	3	4	5	5	4	7
	7	7	9	9	6	7	9	4
	9	9	9	7	9	9	8	4
	5	6	8	9	9	7	6	9

Add downward without pencil or paper:

3.	8	6	9	9	8	8	7	7
	6	9	8	9	7	9	9	7
	9	7	7	9	9	9	9	8
4.	8	9	8	8	8	9	8	9
	8	7	8	7	8	9	9	9
	5	9	7	8	8	9	6	8
	9	6	9	7	7	8	9	9
5.	9	9	9	9	7	4	7	7
	8	8	9	6	9	9	7	9
	8	9	8	9	9	7	9	9
	8	7	5	8	6	8	8	7

TUESDAY is bank day in this school. The children bring their money and add it to what they already have in the bank.

1. Nell added 7¢ to 30¢. How much did she have?
2. Tom added 5¢ to 28¢. How much did he have?

Find how much these children had:

3. Ida	4. Jim	5. May	6. Ben	7. Joe	8. Ann
6¢	9¢	6¢	7¢	8¢	4¢
32¢	33¢	35¢	48¢	54¢	36¢

Add upward without pencil or paper:

9.	10.	11.	12.	13.	14.
3	5	1	1	3	2
3	5	7	3	7	1
6	5	7	5	1	8
40	35	40	64	40	72

1. Joe had 81¢. In three days he earned 1¢, 6¢, and 2¢. How much did he have then?

2. Ida spent 40¢ for a pie, 4¢ for a pear, 5¢ for candy, and 1¢ for gum. How much was this?

Make up stories like Ex. 2 about these and add:

3.	3	1	4	2	2	3	3	3
	1	3	6	7	5	5	2	5
	6	2	7	1	6	2	7	4
	35	54	36	56	64	56	72	81
4.	7	4	5	8	5	4	7	3
	8	6	2	5	6	8	5	1
	7	6	5	4	3	8	4	7
	49	36	35	36	45	40	45	56
5.	2	7	3	5	2	2	7	3
	1	4	2	2	1	1	2	5
	8	3	3	7	2	6	4	4
	63	42	40	63	45	56	48	63
6.	5	9	5	4	1	3	1	6
	3	1	1	5	3	3	1	1
	4	5	6	4	4	6	8	7
	56	48	49	72	49	45	36	64

1. On Saturday Joe worked in a baker's shop. In the morning 32 women and 7 children came into the shop. How many people came in?

2. The baker had 36 loaves of white bread and 5 loaves of brown bread. How many loaves of bread did he have in all?

3. He baked 28 pans of small beans and 4 pans of large beans. How many pans of beans did he bake?

4. In one glass case there were 48 white rolls and 6 brown rolls. How many rolls were there in all?

5. Joe sold 6 peanut cookies and 36 sugar cookies. How many cookies did he sell?

Watching the Endings

EDNA had 45¢ to put in the bank, but on her way to school she lost 2¢. How many cents did she have left?

45
2
43

This is a subtraction problem. It asks how much 45 less 2 is.

45 less 2 is 43.

Edna had 43¢ left.

Study these four examples and **watch the endings:**

35 less 2 is 33. 2 from 45 is 43.
25 less 2 is 23. 2 from 55 is 53.

Give the answers quickly in these examples:

1.	2.	3.	4.
8 – 5.	7 – 3.	9 – 6.	25 – 5.
18 – 5.	17 – 3.	19 – 6.	65 – 5.
28 – 5.	27 – 3.	49 – 6.	85 – 5.
38 – 5.	37 – 3.	79 – 6.	95 – 5.

As in Exs. 1 to 4, make three more examples like each of these and give the answers:

5. 5 – 4.	10. 6 – 1.	15. 27 – 6.	20. 76 – 2.
6. 8 – 3.	11. 9 – 4.	16. 13 – 1.	21. 46 – 4.
7. 4 – 2.	12. 3 – 3.	17. 49 – 2.	22. 26 – 5.
8. 9 – 7.	13. 8 – 2.	18. 37 – 4.	23. 58 – 6.
9. 8 – 4.	14. 7 – 5.	19. 67 – 2.	24. 19 – 5.

1. The postman had 25 letters. He put 3 letters in Mr. White's box. How many did he have left?

2. John had 37¢ and spent 5¢ for a top. How many cents did he have left?

3. Cora's book has 48 pages. She has read 7 pages. How many more pages are there for Cora to read?

4. There were 29 children at a picnic. If 5 children went home early, how many were left?

5. An hour ago Tom had 36 papers to sell. He now has 2 papers. How many did he sell?

6. There were 23 checkers on the board. When Alice took off 2 checkers, how many were left?

7. A doll cost 47¢. After Christmas it cost 7¢ less. How much did it cost after Christmas?

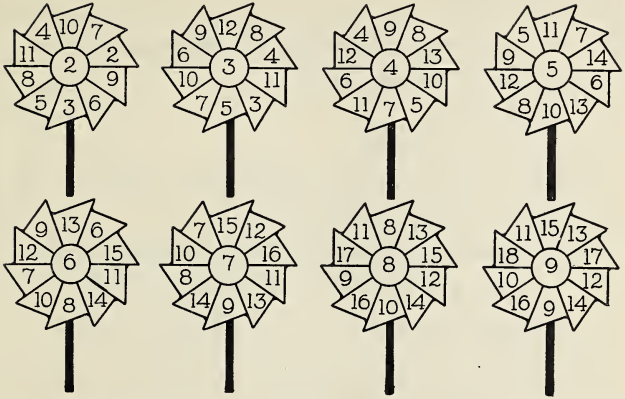
8. The robins found 12 worms, but 2 worms crawled into a hole. How many were left?

9. Father Squirrel hid 37 nuts, but Bunny Squirrel found them and ate 4. How many nuts were left?

10. Dan had 27 arithmetic examples. He has done 6 examples. How many more has he left to do?

11. There are 38 pupils in the third grade in our school, but 3 girls are absent today. How many pupils are in school today?

12. Amy's mother is 25 years old and Amy is 5 years old. What is the difference in their ages?



WHIRLIGIGS are good fun. We start with the handle and subtract the number in the center from each of the other numbers.

In the first whirligig, we have $3 - 2$, $5 - 2$, $8 - 2$, and so on, going around from left to right.

We give only the answers, as "1, 3, 6," and so on.

---

1. Take the first whirligig and see how quickly you can give the answers.

2. Take each of the other whirligigs and see how quickly you can give the answers for each one.

3. If you cannot give the answers quickly, study pages 27, 30, 35, and 37 again.

SOMETIMES the tens' figure changes in subtraction. For example, if Joe has 42¢ and spends 7¢, how much will he have left?

42 less 7 is 35.

Joe will have 35¢ left.

42
7
35

The tens' figure in the answer **is 3. It is 1 less than the tens' figure in 42.**

Study these examples and **watch the tens' figure:**

32 less 7 is 25. 62 less 7 is 55.
52 less 7 is 45. 92 less 7 is 85.

If you take 7 from a number ending in 2, how will the answer end? How will the tens' figure change?

State the tens' figure which should go in place of the star in each of these subtraction examples:

1.					2.				
	25	35	45	55		23	33	43	53
	9	9	9	9		5	5	5	5
	*6	*6	*6	*6		*8	*8	*8	*8

Give the answers to these subtraction examples:

3.					5.				
	11	21	31	71		14	34	44	64
	6	6	6	6		7	7	7	7
4.					6.				
	12	62	22	42		13	53	23	83
	4	4	4	4		8	8	8	8

Give the answers in each of these groups:

1.	2.	3.	4.
12 – 8.	16 – 9.	15 – 7.	10 – 5.
22 – 8.	26 – 9.	25 – 7.	30 – 5.
32 – 8.	36 – 9.	35 – 7.	50 – 5.
42 – 8.	46 – 9.	45 – 7.	80 – 5.

As in Exs. 1 to 4, make three other examples like each of these and give the answers:

5. 12 – 7.	11. 17 – 8.	17. 10 – 7.	23. 18 – 9.
6. 15 – 6.	12. 13 – 6.	18. 11 – 9.	24. 12 – 6.
7. 16 – 8.	13. 12 – 9.	19. 13 – 8.	25. 15 – 8.
8. 11 – 2.	14. 14 – 6.	20. 12 – 5.	26. 17 – 9.
9. 10 – 4.	15. 13 – 9.	21. 10 – 9.	27. 11 – 7.
10. 13 – 5.	16. 11 – 3.	22. 14 – 8.	28. 13 – 4.

Subtract quickly:

29.	12	32	11	20	34	21	30	43
	3	3	5	3	8	4	2	4
30.	24	30	16	21	33	20	44	30
	9	1	7	3	7	6	5	8
31.	33	45	21	64	72	54	23	41
	5	9	6	7	4	6	8	8

1. Dick had 63 white ears of corn, 2 red ears, and 4 yellow ears. How many ears of corn did he have?

2. He had 37 pounds of sweet potatoes. He sold 25 pounds. How many pounds did he have left?

3. Dick saw 6 squirrels in a tree, 1 on a stump, 3 in the garden, and 2 in the road. How many squirrels did he see?

4. Dick found 11 white chickens, 5 red ones, 3 black ones, and 10 speckled ones in his garden. How many chickens did he find?

5. He saw 10 crows in a tree, 5 crows flying, and 12 crows eating corn. How many crows did he see?

6. Dick paid 35¢ for tomato seed and 15¢ for carrot seed. How much more did he pay for the tomato seed than for the carrot seed?

7. He pulled weeds 40 minutes on Monday, 25 minutes on Tuesday, and 20 minutes on Wednesday. How long did he pull weeds in the three days?

8. One day he worked 30 minutes before school and 65 minutes after school. How much longer did he work after school than before school?

9. Dick sold 30 pounds of red tomatoes, 5 pounds of small yellow ones, and 23 pounds of large yellow ones. How many pounds of tomatoes did he sell?

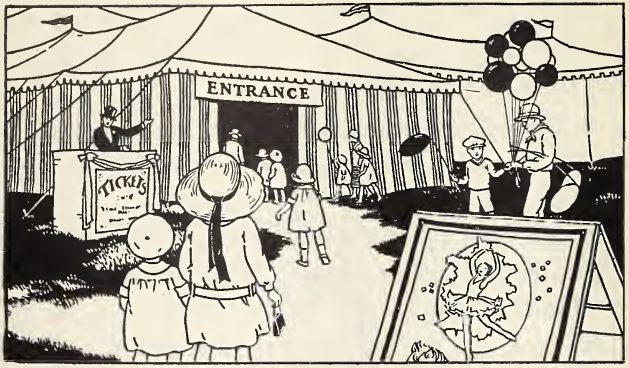
10. Dick picked 49 ears of corn yesterday. The crows and squirrels had spoiled 12 ears by eating them. How many good ears of corn were there?

11. On Park Street there were 6 boys who had gardens, and on Hill Street there were 11 boys who had gardens. How many boys had gardens?

12. Dick had 35 carrots. The rabbits ate 12 carrots. How many were left?

13. Dick had 10 chickens, and Lee Hall, who lived in the next house, had 19. How many more did Lee have than Dick?

14. There were 23 pumpkins in the garden. Dick used 6 for jack-o'-lanterns. How many were left?



1. The circus had 18 monkeys. Dan saw only 6 of them. How many did he not see?

2. Fred had 24 peanuts for the monkeys. He has 8 peanuts left. How many peanuts did he give them?

3. There were 13 boys and 4 girls feeding the monkeys. How many more boys than girls were there?

4. There were 22 men and 5 women riding in the parade. How many more men than women were riding?

5. A man had 36 balloons. He sold 7 balloons to the boys. How many balloons did he have left?

6. There were 25 horses and 8 ponies. How many more horses than ponies were there?

7. There were 32 cages in the parade. Only 9 cages were open. How many cages were closed?

Three-Figure Numbers

WE HAVE already used a great many **two-figure numbers.** Such a number is made up of **tens** and **ones.** For example,

32 means 3 tens and 2 ones.

Three-figure numbers are made up of **hundreds, tens,** and **ones.** For example, the number 432 means

4 hundreds,
3 tens,
and 2 ones.

432 means		
100		
100	10	
100	10	1
100	10	1
400	+ 30	+ 2

The 4 is in **hundreds' place,** the 3 is in **tens' place,** and the 2 is in **ones' place.**

Study these examples which show what three-figure numbers mean and how they are read:

654 means 6 hundreds, 5 tens, 4 ones;
807 means 8 hundreds, 0 tens, 7 ones;
519 is read "five hundred nineteen";
603 is read "six hundred three";
700 means 7 hundreds, 0 tens, 0 ones;
760 means 7 hundreds, 6 tens, 0 ones;
765 means 7 hundreds, 6 tens, 5 ones.

The year 1938 means "the year nineteen hundred thirty-eight." It is often read "nineteen thirty-eight."

Read these sentences:

1. The postman has a letter for 615 Grand Street.

2. Ida and her family live at 811 Lee Street.

3. Joe's book has 170 pages and Tom's has 244 pages.

4. The fat man at the circus weighed 309 pounds.

5. There were 742 children in the Washington School.

6. The year 1928 had 366 days, but the next year had only 365 days.

Read these numbers aloud:

7. 100.	**10.** 220.	**13.** 675.	**16.** 348.	**19.** 300.
8. 110.	**11.** 202.	**14.** 803.	**17.** 459.	**20.** 330.
9. 101.	**12.** 915.	**15.** 560.	**18.** 711.	**21.** 333.

Write these numbers in words:

22. 408.	**23.** 480.	**24.** 804.	**25.** 840.	**26.** 900.

Write these numbers in figures:

27. Fifty-seven.

28. Seventy-five.

29. Ninety-nine.

30. Two hundred.

31. Six hundred one.

32. Nine hundred nine.

AS WE have already seen, when we wish to add several numbers, it is usually easier to write them in a column.

For example, if we wish to add 35, 428, 13, and 6, we write them in a column like this. We put 35, the first number, at the top of the column.

35
428
13
6

In writing numbers in columns, put ones under ones, tens under tens, and hundreds under hundreds.

Read, filling each blank:

1. 359 means —— hundreds, —— tens, —— ones.
2. 404 means —— hundreds, —— tens, —— ones.
3. 215 means —— hundreds, —— ten, —— ones.

Write these numbers in columns:

4. 380, 501, 24.
5. 85, 136, 2.
6. 49, 8, 103.
7. 1, 100, 10.
8. 6, 60, 600.
9. 72, 3, 140.

Suppose that you are going to add these columns. Tell what, if anything, is wrong with them:

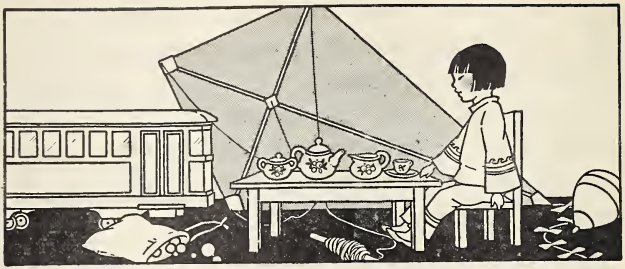
10.
10
273
41
6

11.
5
307
7
20

12.
21
400
32
300

13.
3
421
35
400

14.
20
101
40
203



Read, filling each blank:

1. 15 cents is 5 cents and —— dime.
2. 31 cents is 1 cent and —— dimes.
3. 20 cents is 0 cents and —— dimes.
4. 13 is 3 ones and —— ten.
5. 12 is —— ones and —— ten.
6. 31 is —— one and —— tens.

Read these prices as dimes and cents:

7. Doll, 15¢.
8. Kite, 18¢.
9. Top, 11¢.
10. Car, 25¢.
11. Dishes, 23¢.
12. Marbles, 17¢.

Add these amounts:

13.	14.	15.	16.	17.
10¢	22¢	6¢	8¢	9¢
15¢	34¢	9¢	5¢	7¢

18. Read the sums in Exs. 13 to 17 as dimes and cents.

Carrying 1

JOE paid 29¢ for a toy engine and 16¢ for a set of tracks for the engine to run on. How much did he pay for both?

Write the numbers as shown at the right.
6¢ and 9¢ are 15¢.
15¢ is 1 dime and 5¢.
Write 5 under the 6.

29¢
16¢
45¢

Add the 1 dime to the 1 and the 2 in the dimes' column. The sum is 4. Write 4 in the dimes' column.

The sum is 45¢. Joe paid 45¢ for the toys.

Study these problems and learn how to add:

1. Mary sold 39 Christmas seals, and Julia sold 46 seals. How many did they both sell?

6 and 9 are 15. Write 5 under the ones.
Carry 1 to the tens' column.
1 and 4 are 5; 5 and 3 are 8. Write 8 under the tens.

39
46
85

The sum is 85. The girls sold 85 Christmas seals.

2. Robert has 28 marbles and Joe has 25 marbles. How many marbles have they both ?

What is the first addition? the second? the sum?

3. Lucy has a string of 24 blue beads and 37 white ones. How many beads are there in all?

1. Dora paid 18¢ for milk and 34¢ for butter and sugar. How much did she pay in all?

2. Dora baked 59 sugar cookies and 22 ginger cookies. How many cookies did she bake in all?

3. 69 cookies and 12 cookies are how many?

4. Ida spent 76 minutes cooking and 15 minutes washing dishes. How long did she work?

5. At the school picnic there were 27 boys and 26 girls. How many children were there?

Add these numbers:

6. 25 46	7. 24 39	8. 38 57	9. 47 25	10. 24 57	11. 43 38
12. 24 67	13. 36 16	14. 68 25	15. 23 18	16. 35 39	17. 48 18
18. 19 74	19. 24 58	20. 17 67	21. 25 28	22. 16 57	23. 28 69
24. 36 59	25. 49 48	26. 58 16	27. 39 49	28. 57 39	29. 76 18
30. 63 19	31. 49 47	32. 19 36	33. 37 26	34. 19 25	35. 57 38

THERE are 28 children in the first of three schoolrooms, 36 children in the second, and 29 children in the third. How many children are there in all?

9 and 6 are 15; 15 and 8 are 23. Write 3 in ones' place.

Carry 2 to the tens' column.

2 and 2 are 4; 4 and 3 are 7; 7 and 2 are 9. Write 9 in tens' place.

The sum is 93, and so there are 93 children in all.

28
36
29
93

When you add a column, if the sum is in the 20's, carry 2; if the sum is in the 30's, carry 3.

Always carry the tens' number.

Write the three numbers in the above example in a column. Put another 29 at the bottom and add.

You will have to carry 3. The sum should be 122.

Add these columns:

1. 39	2. 49	3. 69	4. 15	5. 9	6. 59
17	18	9	19	18	9
35	24	14	57	65	23
7. 15	8. 49	9. 8	10. 29	11. 5	12. 14
19	6	15	17	9	17
29	28	19	28	37	19
18	12	39	15	14	42

Add these columns:

1. 10	2. 22	3. 11	4. 23	5. 11	6. 5
56	25	29	36	38	46
29	15	57	37	49	38
7. 5	8. 9	9. 9	10. 8	11. 9	12. 9
7	7	3	6	8	7
3	46	26	17	68	5
66	4	56	57	8	48
13. 7	14. 8	15. 10	16. 15	17. 6	18. 46
19	27	8	4	5	14
16	20	44	45	5	16
30	38	29	18	77	15
19. 38	20. 7	21. 8	22. 7	23. 49	24. 8
7	5	29	6	29	9
19	77	8	29	8	77
18	6	36	39	5	5
25. 8	26. 9	27. 10	28. 7	29. 19	30. 18
6	7	58	30	60	9
60	55	8	7	7	2
5	17	4	8	3	9
16	4	7	24	8	35

1. The class is packing Thanksgiving baskets. The children brought 18 cans of cherries, 12 cans of peaches, and 5 cans of pears. How many cans of fruit did they bring in all?

2. Ned brought 18 eggs, Joe brought 6, Dan brought 6, and Tom brought 12. How many eggs were there?

3. There were 23 glasses of apple jelly, 12 glasses of plum jelly, 10 glasses of currant jelly, and 6 glasses of grape jelly. How many glasses of jelly were there?

4. They sent baskets to 7 families on Lee Street, to 6 families on Pine Street, and to 8 families on Hill Street. To how many families did they send baskets?

5. On Lee Street there were 30 children, on Pine Street there were 26, and on Hill Street there were 35. How many children were there in all?

IT IS much better to have all your answers right than to do all the examples quickly and have several of the answers wrong.

Here is a way to check your work in addition examples so that you can almost always be sure that your answer is right.

Example	Check
15	15 ↓
24 ↑	24 ↓
36 ↑	36
75	75

First, do the example by adding upward.

Think "6, 10, 15." Write 5 and carry 1 to the tens.

Think "1, 4, 6, 7." Write 7. The answer is 75.

Second, check your answer by adding downward.

Think "5, 9, 15." Write 5 and carry 1.

Think "1, 2, 4, 7." Write 7. The answer is 75, which is the same as before.

Adding downward should always give the same answer as adding upward.

If the answers are not the same, there is a mistake somewhere in your work.

Add and check:

1.	2.	3.	4.	5.	6.
29	38	43	17	19	34
35	37	29	38	47	29
35	12	22	36	17	28

SOMETIMES when we add two-figure numbers, the sum of the tens' column is a two-figure number, as in the example here shown.

Think "9, 15." Write 5 and carry 1 to the tens' column.

Think "1, 8, 13." Write the 13 under the tens as here shown.

56
79
135

The answer is 135 and has three figures. Check the answer by adding downward.

Add, watching the tens' column, and then check:

1. 27	2. 69	3. 89	4. 98	5. 79	6. 89
85	47	25	56	54	73
7. 27	8. 89	9. 68	10. 99	11. 8	12. 96
76	74	87	80	48	65
69	88	77	96	55	75
13. 47	14. 38	15. 46	16. 98	17. 89	18. 55
80	59	96	69	59	89
54	28	15	49	67	79
19. 20	20. 22	21. 38	22. 15	23. 34	24. 16
55	13	14	17	26	24
28	24	63	54	58	79
62	75	17	49	37	55

AFTER adding the ones' column, we always write the ones' figure and carry the tens' figure to the next column. Sometimes the ones' figure is 0, as in this example.

Think "5, 8, 10." The sum of the ones is 10.

Write 0 under ones and carry 1 to tens.

Think "1, 4, 5, 6." The sum is 60.

12
13
35
60

Remember to write the 0 in the ones' column and carry the tens' figure.

Add, watching the zeros, and then check:

1. 10	2. 17	3. 64	4. 38	5. 95	6. 19
12	19	48	29	39	27
28	34	28	43	56	34
7. 16	8. 75	9. 70	10. 65	11. 14	12. 46
39	40	83	7	78	20
57	2	70	89	60	75
68	63	87	69	78	89

13. In three trains Joe counted 57 cars, 39 cars, and 64 cars. How many cars did he count?

14. Alice counted 27 books on one shelf, 36 on the second, 19 on the third, and 28 on the fourth. How many books were there on the four shelves?

HERE is an example in which the sum of the tens' column is 10. The answer will have 0 in the tens' place, as here shown.

We first have "7, 13." Write 3 under ones and carry 1.

Think "1, 5, 10." Write 10 as here shown under tens.

56
47
103

The sum is 103. It has three figures and the figure in tens' place is 0.

Add, watching the zeros:

1. 25	2. 47	3. 37	4. 56	5. 79	6. 65
78	56	64	49	28	39
7. 7	8. 3	9. 86	10. 98	11. 56	12. 9
15	37	9	76	99	68
87	69	13	29	48	25
13. 26	14. 29	15. 89	16. 57	17. 14	18. 43
31	15	80	69	94	35
49	58	32	77	98	27
19. 34	20. 18	21. 15	22. 29	23. 18	24. 13
13	37	19	17	19	58
15	27	27	38	16	15
38	26	44	19	49	17

SATURDAY PRICES	
Apples, 35¢ a dozen	Cookies, 26¢ a dozen
Bacon, 38¢ a pound	Corn, 17¢ a can
Bread, 7¢ a loaf	Eggs, 39¢ a dozen
Butter, 38¢ a pound	Pears, 26¢ a can
Coffee, 37¢ a pound	Rolls, 20¢ a dozen

Here are some of the prices in the store where Peter worked on Saturdays. Find how much the different people paid when

1. Mrs. Lee bought a dozen eggs and a pound of butter.

2. Mrs. Cole ordered a pound of coffee, a dozen apples, and a loaf of bread.

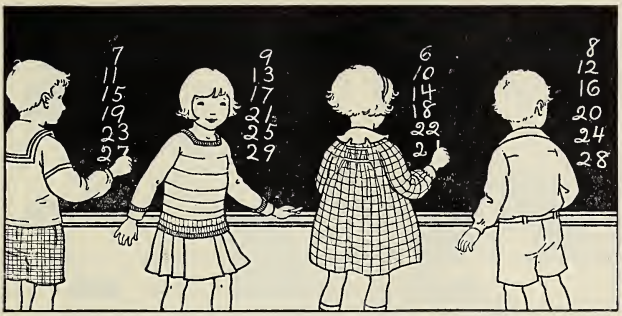
3. Mrs. Hall bought a pound of bacon, a can of corn, and a dozen cookies.

4. Mr. Jones ordered a pound of coffee, a loaf of bread, and a pound of butter.

5. Mrs. Kane bought a dozen rolls, a can of corn, a can of pears, and a loaf of bread.

6. Peter's teacher bought a dozen cookies, a dozen apples, and a can of corn.

7. Make up five more problems like these and find the sums.



THE class is having an **addition race**. The teacher writes the first numbers. The first pupil in each row of seats adds 4 to the first number. He then adds 4 to the sum, adds 4 to this sum, and so on until he has written five sums.

Each pupil who has all the sums right wins 5 points for his row. The one who finishes first wins 3 points more for his row. One pupil keeps the scores on the board. At the end of the game he adds the scores to find which row wins.

Without using pencil and paper, count

1. By 2's to 40, beginning 2, 4, 6, and so on.
2. By 3's to 43, beginning with 1.
3. By 4's to 47, beginning with 3.
4. By 5's to 54, beginning with 4.

1. On Children's Day at the Fair there were 20 children from the third grade, 22 from the fourth, and 28 from the fifth. How many went from these grades?

2. Hal counted the boys who went past his house. There were 16 boys walking, 29 boys in cars, and 7 boys on the bus. How many boys did he count?

3. The gatekeeper said, "In the last hour 46 boys, 35 girls, and 19 parents have gone in." How many people did this make?

4. On the merry-go-round there were 8 little girls, 15 big girls, and 19 boys. How many children were there in all?

5. In one room there were 36 white cakes, 25 yellow cakes, and 8 brown ones. How many were there?

6. Fred saw 35 white rabbits, 38 gray ones, and 17 brown ones. How many rabbits did he see?

Add carefully, and then check:

1. 10	2. 78	3. 40	4. 23	5. 7	6. 20
28	89	58	75	86	87
99	96	68	87	99	67
76	86	78	98	76	75
7. 58	8. 18	9. 23	10. 25	11. 58	12. 63
99	27	38	68	46	98
86	8	69	96	79	55
27	65	99	79	79	99
13. 69	14. 48	15. 34	16. 79	17. 79	18. 86
48	69	99	75	85	99
46	66	38	78	70	45
58	59	87	59	96	88
19. 57	20. 98	21. 87	22. 55	23. 94	24. 87
47	43	46	66	36	58
80	74	50	88	25	69
79	66	64	70	88	77
25. 75	26. 39	27. 95	28. 74	29. 79	30. 66
67	19	68	84	85	97
86	79	28	35	48	88
25	89	89	29	44	46

IN ADDING three-figure numbers we sometimes have to carry from the ones' column but not from the tens' column, as in this example.

Think "8, 15." Write 5 and carry 1.

Think "1, 4, 6." Write 6. There is nothing to carry.

Think "4, 8." Write 8 under hundreds.

427
438
865

The sum is 865. Check the answer by adding the columns downward.

Add carefully, and then check:

1. 547	2. 255	3. 365	4. 124	5. 457
239	436	528	637	306
6. 109	**7.** 77	**8.** 204	**9.** 27	**10.** 18
508	809	459	346	109
376	108	117	619	759

11. Ned sold 108 tickets for the school play and Joe sold 122. How many tickets did they both sell?

12. One of Ann's new books has 156 pages and the other has 124 pages. How many pages are there in all?

13. Mr. Howland drove 209 miles on Monday and 175 miles on Tuesday. How far did he drive in all?

14. Our school has 858 old books and 115 new ones. How many books are there in all?

HERE is an example in adding three-figure numbers where we have to carry only from the tens' column to the hundreds' column.

282
294
576

Think "4, 6." Write 6. There is nothing to carry.

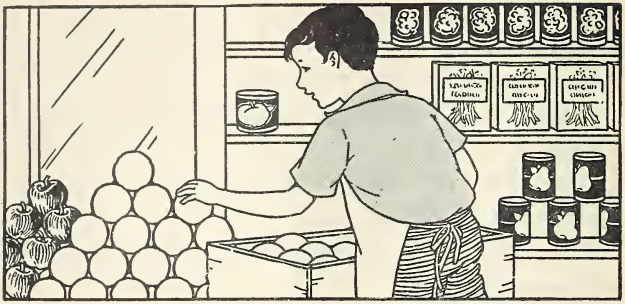
Think "9, 17." Write 7 and carry 1.

Think "1, 3, 5." Write 5.

The sum is 576. Check the answer by adding the columns downward.

Add these columns rapidly, and then check:

1. 290	2. 480	3. 593	4. 680	5. 758
280	172	263	155	190
6. 565	7. 693	8. 386	9. 645	10. 726
240	135	371	261	183
11. 481	12. 260	13. 580	14. 686	15. 587
261	279	280	250	162
16. 93	17. 770	18. 96	19. 91	20. 270
170	34	470	678	354
153	95	382	90	295
21. 148	22. 180	23. 251	24. 290	25. 379
371	363	460	171	70
180	176	287	258	430



1. Lee works in a store on Saturdays. He counted 89 peaches in one box and 105 in another. How many peaches did he count?

2. He waited on 15 men, 37 women, and 26 children. On how many people did he wait?

3. He unpacked 35 jars of peanut butter, 50 jars of jam, and 48 jars of dried beef. How many jars did he unpack in all?

4. He put 65 cans of pears, 108 cans of plums, and 119 cans of apples on the shelves. How many cans did he put away in all?

5. He put 60 oranges in one pile in the window, 104 in another, and 72 in a third. How many oranges did he put in the window?

6. He put 124 apples in one box, 108 in a second, and 156 in a third. How many apples were there?

IN THIS example you will have to carry from the ones' column and then carry again from the tens' column. Watch these two carryings.

Think "9, 15, 20." Write 0 and carry 2 to the tens' column.

Think "2, 5, 6, 13." Write 3 and carry 1 to the hundreds' column.

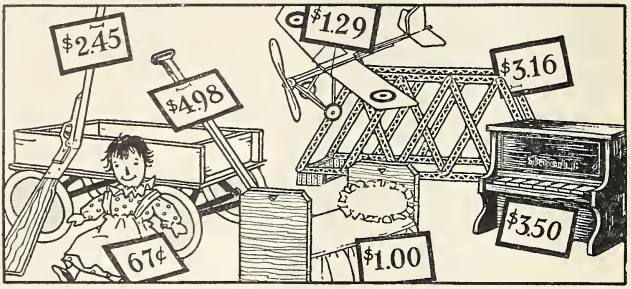
Think "1, 5, 7, 8." Write 8.

175
216
439
830

The sum is 830. Check the answer by adding the columns downward.

Add, carrying twice in each example:

1. 169	2. 265	3. 368	4. 345	5. 149
165	285	158	396	187
6. 406	7. 278	8. 162	9. 889	10. 698
398	567	479	97	236
11. 8	12. 23	13. 198	14. 297	15. 49
97	798	84	460	325
809	174	469	168	537
16. 87	17. 96	18. 207	19. 99	20. 109
75	266	204	708	87
329	354	185	77	98
409	238	119	94	585



HERE are a number of toys that you might like to buy. Let us see if we can read the numbers on the cards which show how much the toys cost.

The price of the air gun is **$2.45.** This number is read **"2 dollars and 45 cents."**

The dot between dollars and cents in $2.45 is called the **decimal point.** It is read **" and."**

There are always two places for cents.

$2.06 means 2 dollars and 6 cents.

$5.00 means 5 dollars. There are no cents.

$125.50 means 125 dollars and 50 cents.

Read these numbers aloud:

1. $1.25.	4. $1.01.	7. $5.04.	10. $10.00.
2. $1.20.	5. $2.35.	8. $5.40.	11. $10.05.
3. $1.00.	6. $4.76.	9. $4.50.	12. $25.00.

IN THE picture on the opposite page, what is the price of the wagon? of the air gun? How much do they both cost?

Write the numbers with dollars under dollars and cents under cents.

Add as with other three-figure numbers.

The sum is $7.43.

$4.98
2.45
$7.43

Always keep the decimal points under each other.

Read these numbers:

1. $9.75.
2. $8.46.
3. $10.12.
4. $50.00.
5. $6.01.
6. $5.75.
7. $321.09.
8. $143.05.

Read the prices of the toys in the picture on the opposite page. Then find the cost of

9. The bed and the toy piano.
10. The wagon and the airplane.
11. The air gun and the erector set.
12. The airplane and the bed.
13. The erector set, the piano, and the bed.
14. The wagon, the airplane, and the piano.
15. The air gun, the wagon, and the bed.
16. The piano, the erector set, and the air gun.
17. Make up three more problems like these.

THE erector set in the picture on page 102 costs $3.16 and the doll costs 67¢. How much do they both cost?

In writing the numbers we put .67 under the cents, as here shown.

We add just as we did in the example on page 103. The sum is $3.83.

$3.16
.67
$3.83

We put the sign $ only before the top number and the answer.

We may write 67¢ as **$0.67**, as **$.67**, or simply as **.67** when it comes under another money number. We read all of these as "**67 cents.**"

When it is written alone, it is better to use $0.67 instead of $.67, so that the decimal point will surely be seen. Most business men do this.

Read these numbers:

1. $1.25.	3. $3.40.	5. $7.01.	7. 75¢.	9. $5.02.
2. $0.25.	4. $0.40.	6. $0.01.	8. $6.75.	10. $0.83.

Add these numbers:

11. $3.68	12. $4.89	13. $0.79	14. $0.98	15. $0.88
.75	.36	.34	.87	.53
16. $5.09	17. $1.94	18. $2.97	19. $7.98	20. $6.75
.08	.06	.68	.49	.87

Write with the signs for money:

1. 9 dollars.
2. 63 dollars.
3. 75 cents.
4. 1 cent.
5. 10 cents.
6. 10 dollars and 10 cents.
7. 25 dollars and 3 cents.
8. 50 dollars and 50 cents.
9. 100 dollars and 25 cents.
10. 1 dollar and 25 cents.

11. We may write \$1.25 for 125¢ and \$0.37 for 37¢. Write 237¢ and 40¢, each as dollars and cents.

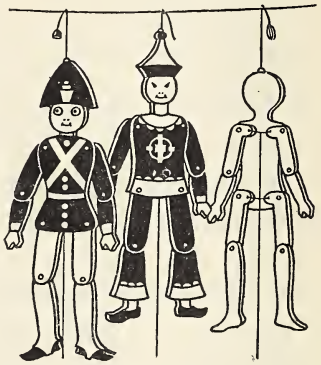
Write as dollars and cents:

12. 375¢. 14. 208¢. 16. 72¢. 18. 50¢. 20. 100¢.
13. 461¢. 15. 110¢. 17. 172¢. 19. 250¢. 21. 500¢.

Copy carefully, add, and check:

22. \$7.00	23. \$2.66	24. \$3.80	25. \$1.98	26. \$4.06
6.00	1.89	.98	2.89	3.07
9.00	5.78	6.52	4.59	2.08
27. \$7.96	28. \$3.46	29. \$3.68	30. \$9.03	31. \$1.89
.77	.57	5.07	.59	9.76
6.04	3.47	.23	9.27	5.09
32. \$2.78	33. \$5.89	34. \$9.97	35. \$1.89	36. \$9.85
3.97	5.56	.69	4.45	3.48
2.99	7.76	3.67	6.78	8.59

1. Miss Day's class made jumping jacks for Christmas. They made 8 wooden ones, 15 cardboard ones, and 20 paper ones. How many did they make?



2. They painted 17 of the jumping jacks red, 9 yellow, and 5 black. How many did they paint?

3. Norman sold a big jumping jack for 40¢, a small one for 16¢, and another for 27¢. How much did he get for all?

4. When Norman made the big jumping jack, he worked 50 minutes the first day, 30 minutes the next, 25 minutes the next, and 45 minutes the last day. How long did it take him to make it?

5. The children used 106 inches of yellow string, 58 inches of red string, and 130 inches of white string. How many inches of string did they use?

6. Ann's mother paid 35¢ for a red jumping jack, 20¢ for a yellow one, and 15¢ for a small black one. How much did she pay in all?

7. The children paid $1.00 for wood, $0.18 for paper, $0.25 for cardboard, and $0.12 for sandpaper. How much did they pay in all?

Subtracting Money, — No Borrowing

IN THE problems about the toy store, the wagon cost $4.98 and the air gun cost $2.45. How much more did the wagon cost than the gun?

Write the numbers like this.

5 from 8 is 3.

4 from 9 is 5.

2 from 4 is 2.

$4.98
2.45
$2.53

Put the decimal point in the answer under the other decimal points. The answer is $2.53.

Find the differences:

1. $4.59 1.32	2. $7.89 1.09	3. $6.94 3.12	4. $8.06 3.01	5. $8.77 2.27
6. $6.89 2.14	7. $7.59 4.20	8. $9.87 3.43	9. $7.69 1.45	10. $9.98 1.65
11. $7.26 5.00	12. $8.61 7.61	13. $9.53 7.02	14. $3.75 1.65	15. $8.53 6.10
16. $8.14 3.03	17. $9.37 8.30	18. $2.58 1.48	19. $9.42 5.02	20. $9.46 6.45
21. $9.87 7.24	22. $6.89 3.84	23. $8.98 6.30	24. $7.96 3.26	25. $8.79 5.20

Read, giving the missing numbers:

1. 27¢ is —— dimes and —— cents.
2. 50¢ is —— dimes and —— cents.

Tell the number of dimes and cents in

3. 23¢.	5. 91¢.	7. 30¢.	9. 82¢.	11. 17¢.
4. 64¢.	6. 56¢.	8. 15¢.	10. 20¢.	12. 48¢.

Subtract:

13. 5 dimes 3 cents
2 dimes 1 cent

14. 8 tens 6 ones
3 tens 2 ones

Change to cents:

15. 1 dime and 3 cents.
16. 1 dime and 6 cents.
17. 1 dime and 2 cents.
18. 1 dime and 4 cents.

Change to ones:

19. 1 ten and 1 one.
20. 1 ten and 5 ones.
21. 1 ten and 2 ones.
22. 1 ten and 4 ones.

In each of these numbers change one of the tens to ones; for example, 33 is 2 tens and 13 ones:

23. 36.	26. 42.	29. 37.	32. 20.	35. 52.
24. 25.	27. 45.	30. 54.	33. 65.	36. 38.
25. 32.	28. 61.	31. 26.	34. 70.	37. 53.

ANN had this problem at the board: "Joe earned 45¢ last Saturday morning. He spent 17¢ for a knife. How much did he have left?"

When Ann started to subtract, she saw that she could not take 7¢ from 5¢.

So she changed 45¢, which is 4 dimes and 5 cents, to 3 dimes and 15 cents, as shown in the work below.

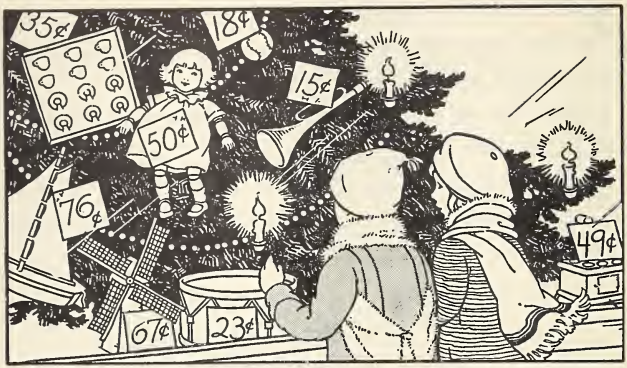
Write this	Think this
45¢	3 dimes and 15 cents
17¢	1 dime and 7 cents
28¢	2 dimes and 8 cents

Ann then subtracted. She found that Joe would have 2 dimes and 8 cents left.

For her answer she wrote 28¢.

Subtract:

1. 61	2. 72	3. 84	4. 93	5. 86	6. 53
42	53	36	48	19	36
7. 75	8. 86	9. 53	10. 72	11. 92	12. 64
38	58	29	47	19	29
13. 86	14. 77	15. 98	16. 64	17. 83	18. 91
47	29	39	18	25	68



1. Jean has 55¢. Which toys cost so much that Jean cannot buy them?

2. How much money will Jean have left if she buys the doll? the stove? the tea set?

3. How much more money does Jean need to buy the boat? the windmill?

4. Fred has 75¢. How much more money has Fred than Jean?

5. How much money will Fred have left if he buys the windmill? the drum? the horn?

6. Fred wants two toys. How much will he have left if he buys a ball? What other toy can he buy then?

7. How much more does the boat cost than each of the other toys?

In each of these subtractions state how the top number changes; for example, in Ex. 1 the 72 changes to 60 + 12, the 7 changing to 6 and the 2 to 12:

1. 72	2. 32	3. 81	4. 53	5. 87	6. 43
16	15	32	27	38	19

Change the upper number in each of these examples and subtract the lower number from it:

7. 63	8. 81	9. 56	10. 88	11. 74	12. 65
15	42	18	29	27	28
13. 67	14. 92	15. 91	16. 91	17. 82	18. 46
39	67	34	57	58	27
19. 84	20. 93	21. 71	22. 96	23. 92	24. 84
69	76	59	29	49	26
25. 95	26. 71	27. 73	28. 55	29. 84	30. 61
16	48	38	39	18	45
31. 82	32. 91	33. 83	34. 92	35. 84	36. 95
54	73	64	63	15	27
37. 72	38. 74	39. 71	40. 91	41. 64	42. 92
54	39	46	45	27	18

HERE is a problem in which you will have to subtract from a number ending in 0: "Jim had 70¢ and spent 25¢ for a collar for his dog. How much did he have left?"

Think of 0 with a 1 before it. Remember to take this 1 from the tens.

5 from 10 is 5. Write 5.

2 from 6 is 4. Write 4.

70
25
45

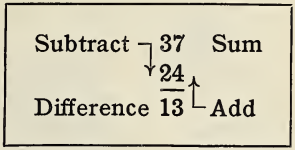
The answer 45 means 45¢. In such cases, we do not need to use the sign ¢ **because we know from the problem that the answer will mean cents.**

Subtract, remembering to take 1 from the tens:

1. 30	2. 40	3. 90	4. 90	5. 60	6. 50
16	18	55	32	41	33
7. 80	8. 40	9. 80	10. 90	11. 20	12. 50
57	24	49	62	13	25
13. 70	14. 80	15. 80	16. 10	17. 70	18. 90
34	16	21	7	48	19
19. 90	20. 50	21. 60	22. 70	23. 90	24. 90
51	16	29	13	47	78
25. 60	26. 80	27. 60	28. 70	29. 90	30. 80
32	36	14	53	27	64

YOU can prevent many mistakes by checking your work. Here is an easy way to check your work in subtraction to be sure that the answer is right.

When we subtract 24 from 37, the difference, as here shown, is 13.



Now add 13 to 24, adding upward as shown. The sum is 37, the top number. The answer is right.

To check a subtraction, add the answer to the number subtracted. The sum should be the top number.

Copy these examples, subtract, and check:

1. Subtract 98 − 34 = Add	2. 75 − 30	3. 57 − 13	4. 69 − 27
5. Subtract 86 − 21 = Add	6. 44 − 14	7. 79 − 36	8. 94 − 80
9. Subtract 63 − 14 = Add	10. 65 − 27	11. 85 − 36	12. 92 − 54
13. Subtract 85 − 46 = Add	14. 86 − 67	15. 78 − 29	16. 76 − 58

Subtract, and then check each answer:

1. 81 − 26	2. 86 − 48	3. 93 − 28	4. 65 − 19	5. 76 − 57	6. 51 − 28
7. 51 − 33	8. 95 − 77	9. 84 − 45	10. 63 − 37	11. 76 − 39	12. 93 − 69
13. 93 − 14	14. 64 − 26	15. 85 − 56	16. 91 − 34	17. 92 − 48	18. 74 − 18
19. 33 − 16	20. 82 − 64	21. 45 − 28	22. 50 − 19	23. 94 − 19	24. 80 − 13
25. 87 − 19	26. 62 − 33	27. 91 − 27	28. 83 − 45	29. 60 − 48	30. 81 − 35
31. 94 − 37	32. 98 − 59	33. 71 − 29	34. 72 − 25	35. 47 − 18	36. 92 − 57
37. 70 − 17	38. 94 − 75	39. 60 − 16	40. 82 − 29	41. 71 − 42	42. 83 − 54
43. 60 − 22	44. 76 − 59	45. 97 − 69	46. 70 − 35	47. 84 − 39	48. 80 − 64
49. 92 − 46	50. 53 − 39	51. 52 − 15	52. 55 − 28	53. 45 − 29	54. 45 − 16

1. Joe wants to buy a pony that costs $50. His father says that he will give him $15. How much more does Joe need?

2. Joe earned 40¢ yesterday, but he spent 15¢ for apples. How much did he have left?

3. He earned 65¢ today and spent 37¢ for a halter strap. How much did he have left?

4. The pony costs $50. When Joe has $25, how much more does he need?

5. Dick paid $39 for a pony. It cost $57 to build a shed for it. How much more did the shed cost than the pony?

6. Joe's pony cost $50 and Dick's cost $39. How much more did Joe's pony cost than Dick's?

In these examples the upper number shows how much Joe earned each day, and the lower one shows how much he spent. Find how much he had left each day:

7.	8.	9.	10.	11.	12.
Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
45¢	60¢	50¢	55¢	60¢	40¢
26¢	37¢	26¢	29¢	48¢	25¢

Subtract as with two-figure numbers, writing the answers on folded paper. In Ex. 1 there is nothing to subtract from the 4, so write 4 in the answer:

1. 476 29	2. 436 108	3. 960 914	4. 998 489	5. 754 25
6. 474 309	7. 964 626	8. 980 173	9. 765 306	10. 846 107
11. 395 28	12. 943 425	13. 957 309	14. 682 25	15. 980 712
16. 372 166	17. 292 58	18. 723 106	19. 992 239	20. 290 57
21. 981 507	22. 594 68	23. 197 48	24. 963 854	25. 751 442
26. 595 379	27. 591 483	28. 763 659	29. 960 548	30. 853 47
31. 723 418	32. 781 579	33. 934 27	34. 642 533	35. 270 139
36. 691 36	37. 615 407	38. 971 614	39. 792 307	40. 971 948

IF YOU wish to subtract 461 from 825, as shown in the work below, you cannot take 6 from 2. You will have to change one of the hundreds to 10 tens.

1 from 5 is 4. Write 4.

Think of 1 before the 2. Remember to take this 1 from the 8.

6 from 12 is 6. Write 6.

4 from 7 is 3. Write 3.

825
461
364

The answer is 364. Check the work by adding the answer to the number subtracted.

Copy these examples, and then subtract:

1. 580	2. 638	3. 869	4. 977	5. 909
190	264	172	795	156
6. 769	7. 978	8. 642	9. 656	10. 764
494	680	372	460	584
11. 831	12. 947	13. 956	14. 747	15. 849
270	290	576	286	350
16. 531	17. 745	18. 949	19. 739	20. 539
281	365	395	148	397
21. 419	22. 937	23. 409	24. 325	25. 659
251	54	167	160	183

HERE is an example in subtraction in which you have to borrow from both the hundreds and the tens. Study it to find all the changes.

540
365
175

The 0 becomes 10. 5 from 10 is 5.
The 4 changes to 3. 6 from 13 is 7.
The 5 changes to 4. 3 from 4 is 1.
The answer is 175.

In the next example there are 0 tens and 0 ones in 900. You will have to change one of the 9 hundreds to 10 tens and then one of these tens to 10 ones.

900
258
642

8 from 10 is 2. Write 2.
Taking 1 from 10 (tens) leaves 9.
5 from 9 is 4. Write 4.
Taking 1 from 9 (hundreds) leaves 8.
2 from 8 is 6. Write 6.
The answer is 642. Check it by adding, as usual.

Copy these examples, subtract, and check:

1. 940	2. 310	3. 704	4. 600	5. 400
85	16	496	134	197
6. 500	7. 643	8. 572	9. 800	10. 280
298	375	196	122	97
11. 900	12. 660	13. 700	14. 800	15. 700
787	68	348	698	195

The Fruit Store

1. Ida bought 2 apples at 5¢ each. She paid 5¢ and 5¢. How many are two 5's?

2. How much did she pay for 2 plums at 3¢ each? How many are two 3's?

3. A grapefruit costs 9¢. Two grapefruits will cost 9¢ and 9¢. How many are two 9's?

4. Add these numbers:

1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9

5. How many are two 4's? two 7's? two 2's?

6. How many are two 6's? two 8's? two 1's?

IDA paid 5¢ for an apple. Then she paid another 5¢ for an apple for Ruth. How many times did she pay 5¢? How many cents did she pay?

2 times 5¢ is 10¢.

Here is another way of writing the same thing:

$$2 \times 5¢ = 10¢.$$

The sign × means "**times.**" It is called the **sign of multiplication.** "2 × 5" means **5 multiplied by 2.**

5 + 5 = 10.	2 × 5 = 10.
Two 5's are 10.	2 times 5 is 10.

Give the answers and learn them all:

1. 2 × 1 = ?	4. 2 × 4 = ?	7. 2 × 3 = ?
2. 2 × 5 = ?	5. 2 × 7 = ?	8. 2 × 8 = ?
3. 2 × 2 = ?	6. 2 × 9 = ?	9. 2 × 6 = ?

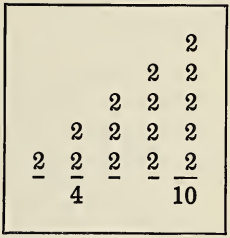
10. At 3¢ each, what do 2 stamps cost?

11. How much must I pay for 2 oranges at 8¢ each? at 7¢ each? at 6¢ each?

Multiply the top number by the lower number:

12. 5	13. 9	14. 6	15. 8	16. 7	17. 4
2	2	2	2	2	2

1. Write and add columns of 2's, from one 2 to nine 2's. Here are the first five columns with two of the sums. What are the other seven sums?



2. Read the columns which you made in Ex. 1, beginning "One 2 is 2, two 2's are 4," and so on to "nine 2's are 18."

3. How many are five 2's? six 2's? four 2's? eight 2's?

4. Read and learn this multiplication table of 2's:

$1 \times 2 = 2$	$4 \times 2 = 8$	$7 \times 2 = 14$
$2 \times 2 = 4$	$5 \times 2 = 10$	$8 \times 2 = 16$
$3 \times 2 = 6$	$6 \times 2 = 12$	$9 \times 2 = 18$

At 2¢ each, find the cost of

5. 4 pens. 7. 5 mints. 9. 6 stamps.
6. 7 pencils. 8. 8 plums. 10. 9 apples.

Give the answers or the missing numbers:

11. 3×2. 15. —— $\times 2 = 10$. 19. —— $\times 2 = 14$.
12. 8×2. 16. —— $\times 2 = 4$. 20. —— $\times 2 = 2$.
13. 6×2. 17. —— $\times 2 = 6$. 21. —— $\times 2 = 8$.
14. 7×2. 18. —— $\times 2 = 18$. 22. —— $\times 2 = 12$.

1. Last Saturday the boys spent 2 hours picking up nuts. Bob picked up 7 quarts of nuts each hour. How many quarts did he pick up in all?

2. The boys took home 2 bags of nuts. Each bag held 3 pecks. How many pecks of nuts were there?

3. A peck is 8 quarts. How many quarts are there in 2 pecks?

4. At 3 miles an hour, how far can a Girl Scout walk in 2 hours?

5. A schoolroom has 8 seats in each row. How many seats are there in 2 rows?

6. How much will 6 stamps cost at 2¢ each?

7. A gallon is 4 quarts. How many quarts are there in 2 gallons?

8. When milk is 9¢ a quart, how much will 2 quarts of milk cost?

9. If a telephone call costs 5¢, what do 2 calls cost?

10. Fred has 2 savings banks. If there are 6 pennies in each bank, how many pennies has he?

11. Joe's pony eats 2 quarts of oats a day. How many quarts does he eat in 7 days? in 8 days?

1. Give the sums of these columns:

1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9

2. Read each column in Ex. 1 like this:

Three 1's are ——. Three 5's are ——.
Three 2's are ——. Three 6's are ——.
Three 3's are ——. Three 7's are ——.
Three 4's are ——. Three 8's are ——.
Three 9's are ——.

Give these answers quickly:

3. $3 \times 6 = ?$ 6. $3 \times 2 = ?$ 9. $3 \times 9 = ?$
4. $3 \times 1 = ?$ 7. $3 \times 7 = ?$ 10. $3 \times 5 = ?$
5. $3 \times 4 = ?$ 8. $3 \times 3 = ?$ 11. $3 \times 8 = ?$

12. At 7¢ a day, how much will John save in 3 days?

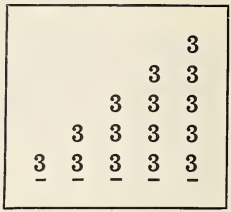
13. May, Ann, and Nell are having lunch in the woods. Each girl has

2 sandwiches	6 cherries	3 mints
1 cup of milk	5 walnuts	4 wafers

How many cups of milk have the 3 girls? how many sandwiches? how many wafers?

14. In Ex. 13, the girls have how many mints? how many cherries? how many walnuts?

1. Write and add columns of 3's, from one 3 to nine 3's. Here are the first five columns. What is the sum of each of the nine columns?



2. Read the columns which you made in Ex. 1, beginning "One 3 is 3, two 3's are 6," and so on to "nine 3's are 27."

3. How many are two 3's? one 3? six 3's? four 3's? eight 3's? three 3's? seven 3's?

4. Read and learn this multiplication table of 3's:

$1 \times 3 = 3$	$4 \times 3 = 12$	$7 \times 3 = 21$
$2 \times 3 = 6$	$5 \times 3 = 15$	$8 \times 3 = 24$
$3 \times 3 = 9$	$6 \times 3 = 18$	$9 \times 3 = 27$

5. Which is better, to add 3's or to multiply?

Multiply the top number by the lower number:

6.	7.	8.	9.	10.	11.
3	3	3	3	3	3
5	8	9	6	4	7

Give the answers or the missing numbers:

12. 3×6.
13. 3×8.
14. 7×3.
15. $3 \times$ —— $= 21$.
16. $5 \times 3 =$ ——.
17. $15 =$ —— 3's.
18. —— $\times 3 = 27$.
19. $24 =$ —— $\times 3$.
20. $3 \times$ —— $= 12$.

1. There are 3 new books on the reading table. Each has 8 stories in it. How many stories are there in all?

2. Each book has 2 fairy stories. How many fairy stories are there in the 3 books?

3. Each book has 4 animal stories. How many animal stories are there in the 3 books?

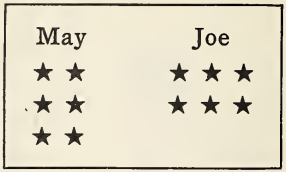
4. Each book has 9 pictures. How many pictures are there in the 3 books?

5. Each book cost 1 dollar. How many dollars did the 3 books cost?

6. On Hill Street there are 9 girls and 7 boys. In vacation each read 3 books. How many books did the 9 girls read? How many did the 7 boys read?

7. The reading table has 3 new books each month. How many new books does it have in 6 months?

1. May and Joe won these stars last week. Which had the more stars?



2. Which, if either, is greater, 2×3 or 3×2?

3. Add two 7's.

4. Add seven 2's.

5. Which, if either, is greater, 2×7 or 7×2?

6. How many are 3×5? How many are 5×3?

7. Since $2 \times 8 = 16$, what does 8×2 equal?

8. 3 times 9 is the same as 9 times what number?

Read, filling the blanks:

9. $2 \times 5 = 5 \times$ ——.
10. $3 \times 6 = 6 \times$ ——.
11. $9 \times 2 = 2 \times$ ——.
12. $3 \times 1 = 1 \times$ ——.
13. $7 \times 3 =$ —— $\times 7$.
14. $8 \times 2 =$ —— $\times 8$.
15. $5 \times 3 =$ —— $\times 5$.
16. $7 \times 2 =$ —— $\times 7$.

Read, giving the answers:

17. 3×8.	23. 5×3.	29. 7×3.	35. 2×9.
18. 8×3.	24. 6×2.	30. 2×4.	36. 5×2.
19. 2×7.	25. 3×7.	31. 3×9.	37. 3×2.
20. 7×2.	26. 4×2.	32. 2×6.	38. 3×4.
21. 6×3.	27. 9×3.	33. 4×3.	39. 2×2.
22. 3×6.	28. 2×8.	34. 8×2.	40. 3×5.

NED bought 3 plums at 1¢ apiece. You can find how many cents he paid either by adding three 1's or by multiplying 1 by 3, as shown in the work below.

$1 + 1 + 1 = 3$	$3 \times 1 = 3$

Any number times 1 is the number itself.

Jane bought 1 apple for 3¢. In this case we have

$1 \times 3 = 3$

1 times any number is the number itself.

Read, giving the answers quickly:

1. 2×1.	4. 4×1.	7. 1×1.	10. 8×1.
2. 1×2.	5. 1×4.	8. 1×9.	11. 5×1.
3. 9×1.	6. 3×1.	9. 7×1.	12. 1×6.

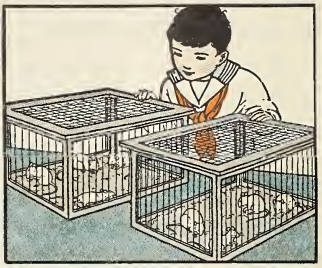
Multiply:

13.	14.	15.	16.	17.	18.
1	7	1	9	5	8
6	1	8	1	1	1

Watch the signs carefully and give the answers:

19. $6 + 1$.	21. 1×3.	23. 7×1.	25. 8×1.
20. 6×1.	22. $1 + 3$.	24. $7 + 1$.	26. 1×4.

1. Lee has 2 cages of white mice. In each cage there are 4 mice. How many mice has he?



2. Each of 5 kittens had 2 little mittens. How many mittens were there?

3. Topknot laid 1 egg a day for 9 days. How many eggs did she lay?

4. Carl has 2 bags of marbles. Each of the bags has 8 marbles in it. How many marbles has he?

5. At 5¢ each, how much will 2 tops cost?

6. These numbers show how many Christmas cards the pupils in Miss Day's room made:

May	Joe	Ida	Hal	Roy	Ned	Rob	Ann
2	5	8	6	9	3	7	4

They bought 2-cent stamps for each card. How much did each pupil pay for stamps?

7. Hal sells the "Post" for 2¢ and the "Sun" for 3¢. One week he sold this number of papers:

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Post, 2¢:	5	9	7	8	4	6
Sun, 3¢:	8	3	6	5	2	9

How many cents did he get each day for the "Post"? for the "Sun"?

Review Questions

1. Which is the larger, $33 - 8$ or $19 + 7$?

2. How much more is \$100 than \$80?

3. What is the name of the answer in addition?

4. In the number 509 what does the 5 show? the 0? the 9?

5. What is meant by "find the difference"?

6. How many nickels are equal to a quarter?

7. What is the number that means 7 hundreds, 3 tens, and no ones?

8. How many cents does it take to be worth the same as a quarter, a dime, and a nickel?

9. What is the sum of $0 + 0 + 0 + 0$?

10. How many must be added to 9 to make 17?

11. How much more is a half dollar than a quarter?

12. What is the sum of twenty-five and nine?

13. Which is the larger, $5 + 0$ or $5 - 0$?

14. How many more than 6 is 15?

15. How many dollars and cents are 127 cents?

16. How many figures are needed to write two hundred thirty-eight?

17. How many quarters does it take to be worth the same as a dollar?

Add each of the numbers 3, 2, 5, 4, 7, 9, 6, and 8, in turn, to each of these numbers:

1. 3, 5, 6, 10, 13, 16, 19, 24, 28, 37.
2. 4, 9, 12, 15, 18, 23, 27, 29, 31, 36.

Add these columns, and then check your work:

3.	4.	5.	6.	7.	8.	9.
5	8	7	4	5	5	4
8	6	4	5	9	7	6
6	9	6	8	7	5	9
9	4	5	5	6	6	9

Find the sum in each of these examples:

10.	11.	12.	13.	14.
377	269	478	758	658
439	432	294	146	982

Give these answers:

15.	16.	17.	18.	19.
9	13	17	7	14
+7	−5	−8	+6	−5

Subtract, and then check your work:

20.	21.	22.	23.	24.
975	844	665	886	954
208	479	498	509	646

25.	26.	27.	28.	29.
986	941	843	972	873
497	343	389	469	586

CHAPTER THREE

MULTIPLICATION, DIVISION, AND FRACTIONS

I. EASY MULTIPLICATIONS

Multiplying a Two-Figure Number

HERE are two examples in multiplying a two-figure number by a one-figure number. The first shows how to multiply 32 by 3, and the second shows how to multiply 54 by 2. Study both examples carefully.

Write	Think
32	$3 \times 2 = 6$
3	$3 \times 3 = 9$
96	

Write	Think
54	$2 \times 4 = 8$
2	$2 \times 5 = 10$
108	

Multiply:

1. 73	2. 81	3. 63	4. 92	5. 51	6. 84
2	3	2	3	3	2
7. 91	8. 73	9. 21	10. 32	11. 31	12. 21
2	3	6	4	7	9

THE answer in multiplication is usually called the **product.** When we are multiplying by 2, 3, or 4, we can check the product by adding; for example,

$$3 \times 32 = 96 \quad \text{and} \quad 32 + 32 + 32 = 96.$$

In multiplying by large numbers this check is too long. In such cases, check by looking over your work.

Multiply:

1. 34	2. 23	3. 42	4. 31	5. 43	6. 32
2	3	4	4	3	2

Check Exs. 1 to 6 by adding as follows:

7. 34	8. 23	9. 42	10. 31	11. 43	12. 32
34	23	42	31	43	32
	23	42	31	43	
		42	31		

Multiply:

13. 44	14. 41	15. 53	16. 72	17. 21	18. 31
2	4	3	2	8	5
19. 53	**20. 71**	**21. 81**	**22. 62**	**23. 21**	**24. 92**
2	3	2	3	7	2
25. 31	**26. 63**	**27. 31**	**28. 93**	**29. 82**	**30. 31**
6	3	8	2	3	9

1. A bushel of peanuts is 64 pints. How many pint bags will 2 bushels of peanuts fill?

2. On Saturday the man at the peanut cart sold 52 bags an hour. How many bags did he sell in 2 hours?

3. The man made 1¢ on each bag. How much did he make on 52 bags?

4. Lena bought 3 bags. There were 41 peanuts in each bag. How many peanuts did Lena buy?

5. There were 2 nuts in each shell. Betty had 9 shells. How many nuts did she have?

6. Each of 3 girls paid 13¢ for sugar to make candy. How much did the sugar cost?

7. It took 23 minutes to make each panful of candy. How long did it take for 3 panfuls?

8. They filled 3 plates with the candy. Each plate held 31 pieces. How many pieces were there?

9. They put 24 pieces of candy in each of 2 boxes. How many pieces did they put in the boxes?

10. The 3 girls each ate 12 pieces of candy. How many pieces did they eat in all?

WHEN Hal visited his grandfather, he hunted eggs in the barn. One day he looked in 3 nests. Each nest had no eggs in it. How many eggs did he find?

$0 + 0 + 0 = 0$	$3 \times 0 = 0$

Any number times zero is zero.
Zero times any number is zero.

$4 \times 0 = 0$	$9 \times 0 = 0$	$1 \times 0 = 0$
$0 \times 4 = 0$	$0 \times 9 = 0$	$0 \times 1 = 0$

Give the answers:

1. 5×0.	4. 1×0.	7. 0×4.	10. 0×2.
2. 7×0.	5. 0×7.	8. 9×0	11. 0×0.
3. 0×9.	6. 6×0.	9. 8×0.	12. 0×5.

Multiply:

13. 10 × 7	14. 30 × 4	15. 80 × 3	16. 60 × 2	17. 30 × 5	18. 80 × 2
19. 90 × 2	20. 20 × 4	21. 40 × 3	22. 70 × 1	23. 50 × 3	24. 20 × 7
25. 30 × 6	26. 70 × 2	27. 10 × 8	28. 70 × 3	29. 20 × 9	30. 50 × 2

HERE is an example which shows how to multiply a three-figure number. We multiply just the same as we do with a two-figure number.

For example, in multiplying 403 by 3, think:

$3 \times 3 = 9$. Write 9.
$3 \times 0 = 0$. Write 0.
$3 \times 4 = 12$. Write 12.

Example	Check
403	403
3	403
1209	403
	1209

The product is 1209, which may be read "twelve hundred nine." Check by adding, as shown.

Find the product, and then check by adding:

1. 903 × 2	2. 301 × 4	3. 610 × 2	4. 320 × 4	5. 732 × 3
6. 812 × 2	7. 312 × 4	8. 800 × 3	9. 724 × 2	10. 921 × 3

Multiply:

11. 611 × 3	12. 310 × 5	13. 211 × 6	14. 201 × 7	15. 310 × 9
16. 210 × 8	17. 433 × 3	18. 201 × 9	19. 931 × 1	20. 301 × 8

1. Ada lives 2 blocks from the schoolhouse. Each block is 300 feet long. How many feet is it from Ada's house to the schoolhouse?

2. Dick helped the milkman for 3 days. He delivered 203 bottles of milk each day. How many bottles of milk did he deliver in all?

3. A school is going to give a play 3 times. There is room for 100 pupils each time. How many pupils can see the play?

4. Paul delivers 201 papers each day. How many papers does he deliver in 4 days?

5. Our store used 3 boxes of ice-cream cones last week. Each box held 120 cones. How many cones were used last week?

6. Carl read 2 books. Each book had 112 pages. How many pages did Carl read?

7. There are 120 oranges in a box. How many oranges are there in 4 boxes like this?

8. Our store had 5 big boxes of gum. There were 100 sticks in each box. How many sticks were there in all the boxes?

9. Mr. Lee drove 132 miles a day for 3 days. How many miles did he drive in all?

10. There are 144 boxes of matches in a big package. How many boxes are there in 2 packages?

1. Add five dollars and eight cents to one dollar and seventy cents. Check the answer.

2. Subtract two dollars and fifteen cents from six dollars. Check the answer.

3. If you have $3.25, how much more do you need in order to have $5.00?

4. 735 means —— hundreds, —— tens, —— ones.

Find the sums:

5.	6.	7.	8.	9.
320	109	140	83	139
87	50	9	268	74
315	67	78	56	108
239	308	749	6	677

Find the differences:

10.	11.	12.	13.	14.
689	750	902	541	820
425	235	610	28	370

15.	16.	17.	18.	19.
983	807	913	935	500
206	428	365	486	238

Find the products:

20.	21.	22.	23.	24.
202	324	600	301	311
3	2	3	6	7

You already know these multiplication facts. Give the products by rows and then by columns:

	9.	10.	11.	12.	13.	14.	15.	16.
1.	3	5	9	2	0	8	7	3
	0	1	0	1	0	1	0	1
2.	7	2	6	8	4	6	1	5
	1	0	1	0	1	0	1	0
3.	0	9	2	1	3	4	1	0
	2	1	2	0	2	0	2	1
4.	6	2	7	5	9	4	8	2
	2	5	2	2	2	2	2	6
5.	1	1	3	0	0	0	3	1
	6	5	4	5	6	4	5	4
6.	2	3	1	0	2	3	0	4
	4	6	9	3	8	3	7	3
7.	3	1	3	5	0	2	1	3
	8	3	9	3	9	3	8	7
8.	6	0	7	2	8	2	9	1
	3	8	3	9	3	7	3	7

Preparation for Carrying

IN THESE examples you will have to multiply and then add. Learn how to do this work, because you will need it later in multiplication.

Study these four examples carefully:

$2 \times 2 + 1 = 5$ $\quad\quad$ $3 \times 3 + 1 = 10$

$4 \times 0 + 2 = 2$ $\quad\quad$ $4 \times 3 + 2 = 14$

Give the answers quickly:

1. $2 \times 1 + 1$.	6. $6 \times 1 + 1$.	11. $6 \times 3 + 1$.
2. $2 \times 3 + 1$.	7. $2 \times 4 + 1$.	12. $7 \times 0 + 2$.
3. $2 \times 0 + 1$.	8. $3 \times 0 + 2$.	13. $3 \times 3 + 2$.
4. $4 \times 1 + 1$.	9. $3 \times 4 + 2$.	14. $8 \times 2 + 2$.
5. $2 \times 8 + 1$.	10. $5 \times 2 + 1$.	15. $9 \times 1 + 2$.

Multiply and then add 1 to each product:

16.	17.	18.	19.	20.	21.
3	5	0	2	3	5
4	2	6	4	5	1

Looking at page 138, multiply and then add 1 to each product in the row in

22. Ex. 4. 23. Ex. 5. 24. Ex. 6. 25. Ex. 7.

On page 138, multiply and then add 2 to each product in

26. Ex. 5. 27. Ex. 6. 28. Ex. 7. 29. Ex. 8.

THE pop-corn man popped 1 quart of corn. It made 39 bags of popped corn. How many bags of popped corn will 2 quarts make?

Multiply like this:

$2 \times 9 = 18$. Write 8 and carry 1.

$2 \times 3 + 1 = 7$. Write 7.

The answer is 78.

If we check by adding, we shall have $39 + 39 = 78$.

39
2
78

Multiply:

1. 27	2. 45	3. 36	4. 32	5. 23	6. 78
2	3	2	7	6	2
7. 13	8. 23	9. 12	10. 22	11. 54	12. 22
5	4	8	5	3	6

WHEN the pop-corn man popped 1 quart of corn, it made 39 bags of popped corn. How many bags will 3 quarts of corn make?

Multiply like this:

$3 \times 9 = 27$. Write 7 and carry 2.

$3 \times 3 + 2 = 11$. Write 11.

The answer is 117.

Is the answer right? Check it by adding three 39's.

39
3
117

Multiply, noticing whether you carry 2 or 1:

1. 58	2. 29	3. 23	4. 47	5. 13	6. 78
3	3	8	3	9	3
7. 33	8. 57	9. 23	10. 98	11. 13	12. 79
8	3	9	3	7	2
13. 68	14. 95	15. 13	16. 33	17. 66	18. 97
2	3	8	5	3	3
19. 23	20. 56	21. 89	22. 33	23. 75	24. 32
7	3	2	6	2	5
25. 33	26. 46	27. 13	28. 22	29. 13	30. 12
9	2	6	8	4	5
31. 23	32. 22	33. 57	34. 32	35. 95	36. 32
5	7	2	6	2	9

Nell worked in a flower store. Find how much the people paid when she sold

1. 3 ferns at 25¢ each.
2. 8 white roses at 12¢ each.
3. 2 Christmas wreaths at 45¢ each.
4. 9 red roses at 11¢ each.
5. 3 plants at 29¢ apiece.
6. 4 bunches of holly at 20¢ a bunch.
7. 3 dozen roses at $1 a dozen.
8. 2 holly wreaths at 35¢ each.
9. 2 bunches of Christmas greens at 40¢ each.
10. 2 bunches of daisies at 30¢ a bunch.
11. 2 small Christmas trees at 49¢ each.
12. Make up three problems like these about buying flowers, and give the answers.

Multiply, and carry from the ones:

1. 629 × 2	2. 103 × 9	3. 302 × 5	4. 914 × 3	5. 212 × 8
6. 203 × 6	7. 312 × 8	8. 103 × 6	9. 112 × 7	10. 408 × 2

Multiply, and carry from the tens:

11. 680 × 3	12. 132 × 4	13. 573 × 2	14. 121 × 5	15. 230 × 8
16. 461 × 3	17. 231 × 4	18. 320 × 7	19. 564 × 2	20. 230 × 4
21. 230 × 9	22. 331 × 8	23. 573 × 3	24. 120 × 6	25. 231 × 7

Multiply, and carry from both ones and tens:

26. 198 × 2	27. 133 × 4	28. 264 × 3	29. 132 × 5	30. 475 × 2
31. 287 × 2	32. 375 × 3	33. 332 × 5	34. 289 × 3	35. 123 × 9
36. 369 × 2	37. 298 × 3	38. 123 × 6	39. 233 × 7	40. 357 × 3

SUPPOSE that we wish to find the cost of 3 toy rabbits at 75¢ each. We might find the cost in cents, but we always give answers like this in dollars and cents.

First write 75¢ as \$0.75.
Then multiply as with other numbers.
Put the decimal point where it will show two places for cents.

\$0.75
3
\$2.25

The answer is \$2.25. The cost of 3 rabbits is \$2.25.

Multiply these amounts:

1. \$0.76	2. \$0.29	3. \$0.89	4. \$0.38	5. \$0.47
2	3	2	2	3
6. \$0.65	7. \$0.59	8. \$0.84	9. \$0.75	10. \$0.69
3	2	3	2	3

Tell how much I must pay if I buy these presents:

11. 3 dolls at 29¢ each.
12. 9 gilt balls at 12¢ apiece.
13. 8 Christmas stars at 12¢ apiece.
14. 6 red-and-white balls at 13¢ each.
15. 3 games of fishpond at 28¢ each.
16. 7 yards of red ribbon at 13¢ a yard.
17. 3 dozen Christmas cards at 37¢ a dozen.

See how quickly you can add these:

1.	9	5	4	9	6	8	4	7
	6	8	7	5	6	5	8	9
2.	9	7	8	9	5	8	7	8
	9	6	3	4	7	9	5	6
3.	5	6	4	7	6	9	7	9
	9	8	9	8	7	2	7	8
4.	9	6	8	3	8	6	9	8
	3	9	8	9	7	5	7	4

See how quickly you can subtract these:

5.	15	18	13	12	14	11	17	14
	7	9	6	5	7	9	8	6
6.	13	12	16	12	13	11	12	15
	5	8	7	4	9	6	7	9
7.	14	11	16	14	12	16	13	15
	9	7	9	5	6	8	7	8
8.	11	12	13	15	12	17	13	14
	8	9	8	6	3	9	4	8

Multiply without using pencil or paper:

1. 3×20	4×30	2×90	7×30
2. 2×40	9×10	2×60	3×50
3. 7×20	8×30	8×20	9×30

Multiply, and then check by going over your work:

4. 134 × 3	5. 415 × 2	6. 132 × 5	7. 125 × 2	8. 234 × 3
9. 235 × 3	10. 145 × 2	11. 236 × 3	12. 230 × 9	13. 135 × 3

Multiply, always giving two places to cents:

14. \$1.03 × 3	15. \$3.50 × 2	16. \$9.10 × 3	17. \$0.75 × 2
18. \$3.00 × 7	19. \$1.36 × 3	20. \$2.34 × 3	21. \$0.95 × 2

Find the cost of buying these things:

22. 2 dresses at \$4.25 each.
23. 2 boys' overcoats at \$9.75 each.
24. 5 picture books at \$1.20 each.
25. 3 concert tickets at \$0.75 each.

Dividing by 2

1. Take 6 books and place them in piles of 2 books each. How many piles are there? How many 2's are there in 6?

2. Take 10 erasers and put them in piles of 2 erasers each. How many piles are there? How many 2's are there in 10?

3. From 6 books take away 2 books at a time until there are none left. How many times did you take away 2 books?

4. You have already learned that $4 \times 2 = 8$. This tells you that there are how many 2's in 8?

$2\overline{)8}$ means "How many 2's are there in 8?"

5. What is the meaning of $2\overline{)4}$? of $2\overline{)12}$? of $2\overline{)16}$?

$2\overline{)\frac{10}{5}}$ means "2 is in 10 five times."

6. Write "2 is in 12 six times" in figures. Put the 6 above the 12 if your teacher says to do it that way.

IDA and Amy have 8 paper dolls. If they divide them equally, each of the 2 girls will have the same number. How many will each girl have?

$2 \times 4 = 8$. There are four 2's in 8.

Each girl will have 4 dolls.

We may write either $2\overline{)8}$ or $8 \div 2 = 4$.

$\quad 4$

They are both read "**8 divided by 2 is 4.**" The sign ÷ means "**divided by**"; it is the **sign of division.**

Read these:

1. $6 \div 2 = 3$.
2. $18 \div 2 = 9$.
3. $10 \div 2 = 5$.
4. $14 \div 2 = 7$.
5. $2 \div 2 = 1$.
6. $4 \div 2 = 2$.

Read, and give the answers:

7. 2×9;	2 is in 18 —— times;	$2\overline{)18}$;	$18 \div 2$.
8. 2×6;	2 is in 12 —— times;	$2\overline{)12}$;	$12 \div 2$.
9. 2×8;	2 is in 16 —— times;	$2\overline{)16}$;	$16 \div 2$.
10. 2×5;	2 is in 10 —— times;	$2\overline{)10}$;	$10 \div 2$.
11. 2×7;	2 is in 14 —— times;	$2\overline{)14}$;	$14 \div 2$.

1. Clara bought 2 candy rabbits and paid 4¢ for them. How many cents did each rabbit cost?

2. Paul paid 18¢ for 2 toy boats. How much did he pay for each boat?

3. At 2¢ each, how many stamps will 10¢ buy?

4. Mother gave Hal and Dick 6 cookies. If they divided them equally, how many did each boy have?

5. Dan and Joe had 14 tickets to sell. They divided them equally. How many tickets did each boy take?

6. Dick wants some marbles that cost 2¢ apiece. How many marbles can he buy with 8¢?

7. Nan and Ida have 12 Easter eggs. If they divide them equally, how many eggs will each girl have?

8. Cora walks 2 blocks to school and Bessie walks 6. How many times as far as Cora does Bessie walk?

9. At 2¢ each, how many marbles will 16¢ buy?

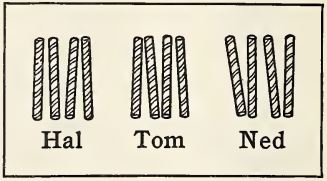
Give the answers rapidly:

10. 6 divided by 2.	16. $8 \div 2$.	22. $2\overline{)14}$
11. 18 divided by 2.	17. $4 \div 2$.	23. $2\overline{)18}$
12. 10 divided by 2.	18. $18 \div 2$.	24. $2\overline{)10}$
13. 14 divided by 2.	19. $6 \div 2$.	25. $2\overline{)4}$
14. 12 divided by 2.	20. $2 \div 2$.	26. $2\overline{)16}$
15. 16 divided by 2.	21. $14 \div 2$.	27. $2\overline{)12}$

HAL, Tom, and Ned have 12 sticks of peppermint candy. If they divide the candy equally, how many sticks will each one of the 3 boys have?

$12 \div 3 = 4$.

The answer is 4; each boy will have 4 sticks of candy.



Check the answer by counting the sticks shown above.

Read, and give the answers:

1. 4×3;	$12 =$ —— 3's;	$3\overline{)12}$;	$12 \div 3$.
2. 6×3;	$18 =$ —— 3's;	$3\overline{)18}$;	$18 \div 3$.
3. 8×3;	$24 =$ —— 3's;	$3\overline{)24}$;	$24 \div 3$.
4. 3×3;	$9 =$ —— 3's;	$3\overline{)9}$;	$9 \div 3$.
5. 7×3;	$21 =$ —— 3's;	$3\overline{)21}$;	$21 \div 3$.
6. 2×3;	$6 =$ —— 3's;	$3\overline{)6}$;	$6 \div 3$.
7. 9×3;	$27 =$ —— 3's;	$3\overline{)27}$;	$27 \div 3$.
8. 1×3;	$3 =$ —— 3;	$3\overline{)3}$;	$3 \div 3$.
9. 5×3;	$15 =$ —— 3's;	$3\overline{)15}$;	$15 \div 3$.

10. Count backward by 3's from 27 to 0. How many times do you take away 3 to reach 0?

11. How many times is 3 contained in 27? in 18?

1. There are 6 boys riding ponies with 2 boys on each pony. How many ponies are there?

2. Tom and Jack divided 10 cookies equally. How many cookies did each boy have?

3. Nell put 2 bulbs in each flowerpot. How many flowerpots did she use for 18 bulbs?

4. At 3¢ each, how many marbles can Joe buy with 27¢? with 15¢? with 18¢? with 9¢? with 6¢?

5. How many 2-cent candles will 16¢ buy?

6. If 2 girls use the same book, how many books will be needed for 10 girls? for 14 girls?

7. How many 3-cent pens will 27¢ buy?

8. There are 16 forks on the table. If there are 2 forks at each place, how many places are there?

9. Dan drinks 9 glasses of milk in 3 days. How many glasses does he drink each day?

10. How many 3-cent pencils can Ann buy with 12¢?

11. There are 21 days in 3 weeks. How many days are there in a week?

12. How many 2-cent stamps can you buy with 4¢? with 18¢? with 12¢? with 14¢? with 6¢? with 2¢? with 8¢? with 10¢? with 16¢?

13. How many 3-cent stamps can you buy with 15¢? with 6¢? with 27¢? with 12¢? with 24¢? with 18¢? with 21¢? with 9¢?

WHEN we studied multiplication, we learned certain facts about 1. Here are two problems from which you can learn the division facts about 1:

1. Dora has 3¢. If a stick of candy costs 1¢, how many sticks can Dora buy?

$3 \div 1 = 3$.

Dora can buy 3 sticks of candy.

2. At 3¢ each, how many can Dora buy?

$3 \div 3 = 1$.

At 3¢ each, Dora can buy only 1 stick.

$1\overline{)3}$ 3

$3\overline{)3}$ 1

Any number divided by 1 gives the number itself.
Any number divided by itself gives 1.

Read, and give the answers:

1. 5×1; $5 =$ —— 1's; $1\overline{)5}$; $5 \div 1$.
2. 1×1; $1 =$ —— 1; $1\overline{)1}$; $1 \div 1$.
3. 2×1; $2 =$ —— 1's; $1\overline{)2}$; $2 \div 1$.

Do these divisions:

4. $1\overline{)5}$ $1\overline{)9}$ $1\overline{)8}$ $6\overline{)6}$ $4\overline{)4}$ $7\overline{)7}$ $1\overline{)7}$

5. How many 1-cent stamps can Harry buy with 4¢? with 8¢? with 7¢? with 9¢?

6. Uncle John bought 6 movie tickets. To how many boys can he give 1 ticket each?

Multiply rapidly:

1.	3	9	1	7	4	1	9	6
	4	2	4	3	2	8	3	2
2.	2	3	1	2	9	8	2	3
	4	3	5	8	1	3	5	1
3.	5	1	7	2	4	2	3	2
	3	2	1	2	1	6	5	9
4.	3	5	3	1	7	8	2	3
	6	2	7	1	2	1	7	2
5.	6	3	2	1	4	8	6	3
	1	8	3	9	3	2	3	9

See how quickly you can give the answers:

6.	3)6	1)9	2)4	2)18	1)6	9)9
7.	2)8	4)4	6)6	1)5	3)24	1)1
8.	3)3	5)5	2)12	8)8	1)2	7)7
9.	2)6	2)2	3)18	3)21	2)18	1)4
10.	2)8	3)9	1)3	2)14	3)12	1)7
11.	1)8	5)5	3)27	2)16	3)15	2)10

Add, and then check your work:

1. 68	2. 26	3. 86	4. 65	5. 99
13	59	48	87	64
79	68	96	59	86
6. 57	7. 39	8. 58	9. 29	10. 53
40	81	36	64	74
78	76	89	97	45
89	48	23	58	87
11. 34	12. 91	13. 30	14. 64	15. 31
82	34	77	78	97
30	95	89	49	35
68	29	63	51	64
98	74	53	72	80

See how quickly you can do these additions:

16. 968	17. 790	18. 877	19. $9.75
459	868	188	8.53
269	477	939	3.04
20. 400	21. 899	22. 910	23. $8.27
324	680	129	2.01
979	478	847	7.37
256	308	109	4.55

Subtract 6, 7, 8, and 9, in turn, from each of these numbers, giving the answers quickly:

1.	11	13	65	16	48	20	34	57
2.	12	14	86	53	35	61	97	70
3.	17	30	29	62	73	45	84	56
4.	15	24	38	46	91	83	72	95

Subtract, and then check your work:

5. 975	6. 820	7. 746	8. $8.24
508	316	259	2.79
9. 823	10. 975	11. 613	12. $9.31
467	389	258	2.64
13. 912	14. 781	15. 954	16. $8.20
134	305	276	5.31
17. 953	18. 622	19. 736	20. $7.52
486	197	187	4.59
21. 917	22. 223	23. 518	24. $8.07
208	184	79	5.68
25. 907	26. 500	27. 902	28. $4.50
619	489	75	1.62

Find the sums:

1.	2.	3.	4.	5.	6.	7.
5	9	5	8	6	8	7
6	5	7	6	4	7	9
3	8	5	8	5	6	9

Add these numbers:

8.	9.	10.	11.	12.
989	568	998	578	987
358	367	509	575	629

Find the differences:

13.	14.	15.	16.	17.
891	984	864	723	980
356	478	596	417	236

18.	19.	20.	21.	22.
902	963	910	847	800
654	475	234	688	237

Find the products:

23.	24.	25.	26.	27.
147	318	103	213	259
2	3	9	7	2

28.	29.	30.	31.	32.
608	213	269	302	321
2	4	3	9	2

33.	34.	35.	36.	37.
785	132	398	123	407
3	5	2	6	3

Four Equal Numbers

1. Give the sum of each of these nine columns:

1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9

Give these answers:

2. Four 1's = ?
3. Four 2's = ?
4. Four 3's = ?
5. Four 4's = ?
6. Four 5's = ?
7. Four 6's = ?
8. Four 7's = ?
9. Four 8's = ?
10. Four 9's = ?

Tell how many cents these will cost:

11. Four 5-cent cups.
12. Four 9-cent tops.
13. Four 7-cent flags.
14. Four 3-cent mints.
15. Four 1-cent pens.
16. Four 6-cent books.
17. Four 8-cent roses.
18. Four 4-cent canes.
19. Four 6-cent dolls.
20. Four 2-cent stamps.
21. Four 9-cent rings.
22. Four 5-cent apples.

Learn these answers so that you can say them quickly:

23. $4 \times 3 = ?$
24. $4 \times 6 = ?$
25. $4 \times 1 = ?$
26. $4 \times 8 = ?$
27. $4 \times 5 = ?$
28. $4 \times 2 = ?$
29. $4 \times 7 = ?$
30. $4 \times 4 = ?$
31. $4 \times 9 = ?$

HERE are two columns which have been added. What is the sum of the first column? What is the sum of the second?

	3
4	3
4	3
4	3
12	12

The sums of these columns show that

$$3 \times 4 = 12$$

and

$$4 \times 3 = 12.$$

Three 4's are the same as four 3's.

Read and learn this multiplication table of 4's:

$1 \times 4 = 4$	$4 \times 4 = 16$	$7 \times 4 = 28$
$2 \times 4 = 8$	$5 \times 4 = 20$	$8 \times 4 = 32$
$3 \times 4 = 12$	$6 \times 4 = 24$	$9 \times 4 = 36$

Give these answers:

1. 8×4; 4×8.
2. 5×4; 4×5.
3. 7×4; 4×7.
4. 9×4; 4×9.
5. 2×4; 4×2.
6. 6×4; 4×6.

Give the answers or the missing numbers:

7. Six 4's = ?
8. Nine 4's = ?
9. Five 4's = ?
10. Eight 4's = ?
11. $9 \times 4 = ?$
12. $7 \times 4 = ?$
13. $8 \times 4 = ?$
14. $5 \times 4 = ?$
15. 16 = —— 4's.
16. 20 = —— 4's.
17. 36 = —— 4's.
18. 28 = —— 4's.

At 4¢ each, find the cost of these toys:

1. 3 drums.
2. 2 kites.
3. 9 dolls.
4. 4 bears.
5. 6 horns.
6. 3 balls.
7. 5 games.
8. 8 arrows.
9. 7 monkeys.

Tell how much these toys will cost:

10. 4 glass marbles at 3¢ each.
11. 4 toy spades at 7¢ apiece.
12. 4 clothespin dolls at 6¢ each.

Find how much Betty paid for

13. 3 toy washtubs at 4¢ each.
14. 4 strings of beads at 8¢ a string.
15. 7 jack-in-the-boxes at 4¢ each.
16. 4 sets of tin dishes at 9¢ a set.

THESE examples will help to make carrying easy. We multiply first and then add. For example, in the case of $4 \times 9 + 2$, first think 36 and then add 2.

Give the answers without using pencil or paper:

1. $4 \times 1 + 2$.	10. $4 \times 3 + 2$.	19. $5 \times 1 + 2$.
2. $6 \times 1 + 2$.	11. $8 \times 4 + 3$.	20. $4 \times 9 + 1$.
3. $9 \times 2 + 3$.	12. $7 \times 4 + 1$.	21. $4 \times 2 + 2$.
4. $8 \times 4 + 1$.	13. $5 \times 3 + 2$.	22. $6 \times 4 + 2$.
5. $6 \times 2 + 2$.	14. $7 \times 4 + 2$.	23. $4 \times 4 + 1$.
6. $9 \times 4 + 1$.	15. $5 \times 4 + 1$.	24. $9 \times 4 + 3$.
7. $4 \times 6 + 1$.	16. $8 \times 4 + 2$.	25. $4 \times 6 + 2$.
8. $4 \times 8 + 2$.	17. $4 \times 5 + 2$.	26. $4 \times 9 + 3$.
9. $5 \times 4 + 2$.	18. $6 \times 4 + 1$.	27. $5 \times 2 + 2$.

Multiply:

28. 963 × 4	29. 143 × 6	30. 442 × 8	31. 244 × 6	32. 142 × 9
33. 124 × 5	34. 135 × 4	35. 442 × 7	36. 997 × 4	37. 143 × 8
38. 898 × 4	39. 144 × 5	40. 440 × 7	41. 425 × 4	42. 144 × 9

Multiply and add, as in "$4 \times 7 + 1 = 29$":

1. $6 \times 0 + 2$.
2. $9 \times 4 + 2$.
3. $8 \times 0 + 3$.
4. $4 \times 5 + 1$.
5. $4 \times 0 + 2$.
6. $9 \times 3 + 3$.
7. $4 \times 7 + 2$.
8. $4 \times 7 + 3$.
9. $4 \times 8 + 1$.
10. $4 \times 6 + 3$.
11. $4 \times 8 + 2$.
12. $4 \times 4 + 3$.

Multiply and then add 3 to each product:

13.										
	5	1	3	1	0	3	2	0	1	2
	4	8	4	9	4	8	4	9	4	8

Multiply:

14. 158	15. 204	16. 309	17. 218	18. 140
4	6	4	4	9
19. 143	20. 204	21. 354	22. 807	23. 341
9	8	4	4	8
24. 343	25. 148	26. 186	27. 254	28. 476
6	4	4	4	4
29. 134	30. 124	31. 379	32. 114	33. 673
9	8	4	8	4
34. 204	35. 128	36. 684	37. 304	38. 134
9	4	4	5	6

Read, and give the answers:

1. $24 =$ —— 4's;	$24 \div 4 =$ ——;	$4\overline{)24}$.
2. $36 =$ —— 4's;	$36 \div 4 =$ ——;	$4\overline{)36}$.
3. $8 =$ —— 4's;	$8 \div 4 =$ ——;	$4\overline{)8}$.
4. $32 =$ —— 4's;	$32 \div 4 =$ ——;	$4\overline{)32}$.
5. $20 =$ —— 4's;	$20 \div 4 =$ ——;	$4\overline{)20}$.
6. $28 =$ —— 4's;	$28 \div 4 =$ ——;	$4\overline{)28}$.

Give the answers quickly:

7. 4×3.	12. 7×4.	17. 32 divided by 4.
8. $12 \div 4$.	13. $28 \div 4$.	18. 16 divided by 4.
9. 9×4.	14. 4×5.	19. 24 divided by 4.
10. $36 \div 4$.	15. $20 \div 4$.	20. 28 divided by 4.
11. $32 \div 4$.	16. $16 \div 4$.	21. 36 divided by 4.

22. Laura walks 20 blocks to school. This is 4 times as far as Jane walks. How many blocks does Jane have to walk?

23. At the beach, 4 girls divided 24 shells equally. How many shells did each girl have?

24. Dora bought 4 bags of nuts for 20¢. How much did each bag cost?

25. Uncle John divided 28 pennies equally among 4 boys. How many did each boy have?

1. Ned did 4 errands for 20¢. How many cents was he paid for each errand?

2. Dan's father set out 24 cabbage plants in 4 rows. How many plants were there in each row?

3. Kate paid 12¢ for 4 candy bars. How much did each bar cost?

4. Ann baked 32 cookies. There were 8 cookies in each pan. How many pans were there?

5. She gave 12 cookies to her 4 brothers. How many cookies did each boy have?

6. May bought 36 mints. There were 9 mints in a package. How many packages did she buy?

7. May divided 28 pink mints among 4 little girls. How many mints did each girl have?

Give the answers quickly:

8. $4 \div 4$.	11. $32 \div 4$.	14. $16 \div 4$.
9. $28 \div 4$.	12. $8 \div 4$.	15. $24 \div 4$.
10. $12 \div 4$.	13. $20 \div 4$.	16. $36 \div 4$.

See how quickly you can do these divisions:

17. $4\overline{)24}$	19. $4\overline{)32}$	21. $4\overline{)8}$	23. $4\overline{)28}$
18. $4\overline{)16}$	20. $4\overline{)20}$	22. $4\overline{)12}$	24. $4\overline{)36}$

1. The 32 children in the third grade marched out for recess in 4 rows. How many children were there in each row?

2. Amy learns 3 new words each day. In how many days will she learn 15 new words?

3. Candy rabbits cost 4¢ each. How many can Joe buy with 20¢? with 28¢? with 36¢?

4. At 3¢ each, how many pencils can you buy with 9¢? with 15¢? with 27¢? with 12¢?

5. On a picnic, 4 boys had 12 cookies. How many cookies did each boy have?

6. Mother divided 18 pennies equally between Tom and Ned. How many did each boy have?

Divide without using pencil or paper:

7. $2\overline{)18}$	14. $4\overline{)8}$	21. $2\overline{)4}$	28. $3\overline{)12}$
8. $3\overline{)15}$	15. $2\overline{)12}$	22. $3\overline{)27}$	29. $2\overline{)16}$
9. $4\overline{)32}$	16. $3\overline{)24}$	23. $2\overline{)14}$	30. $3\overline{)9}$
10. $3\overline{)6}$	17. $4\overline{)4}$	24. $4\overline{)12}$	31. $2\overline{)6}$
11. $2\overline{)10}$	18. $4\overline{)20}$	25. $3\overline{)3}$	32. $3\overline{)21}$
12. $4\overline{)16}$	19. $2\overline{)2}$	26. $2\overline{)8}$	33. $4\overline{)36}$
13. $3\overline{)27}$	20. $4\overline{)28}$	27. $3\overline{)18}$	34. $4\overline{)24}$

Look at these five columns, and then give the answers:

1. Five 5's are ——.
2. Five 6's are ——.
3. Five 7's are ——.
4. Five 8's are ——.
5. Five 9's are ——.
6. Learn this table of 5's:

5	6	7	8	9
5	6	7	8	9
5	6	7	8	9
5	6	7	8	9
5	6	7	8	9

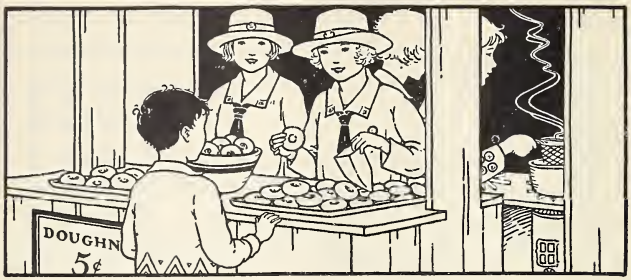
$1 \times 5 = 5$	$4 \times 5 = 20$	$7 \times 5 = 35$
$2 \times 5 = 10$	$5 \times 5 = 25$	$8 \times 5 = 40$
$3 \times 5 = 15$	$6 \times 5 = 30$	$9 \times 5 = 45$

Give the products or the missing numbers:

7. 6×5.
8. 5×4.
9. 7×5.
10. 5×9.
11. 8×5.
12. 5×6.
13. 2×5.
14. 5×3.
15. 5×8.
16. 9×5.
17. $5 \times$ —— $= 35$.
18. $5 \times$ —— $= 45$.
19. $40 = 5 \times$ ——.
20. $35 = 5 \times$ ——.
21. $5 \times$ —— $= 30$.

Find the cost of buying these things:

22. Five 2-cent stamps.
23. Seven 5-cent cakes.
24. Nine 5-cent pears.
25. Four 5-cent rulers.
26. Five 9-cent erasers.
27. Eight 5-cent oranges.



THE Girl Scouts are earning money for a camping trip when school closes for the summer. They are selling doughnuts at 5¢ apiece.

1. Ned buys 2 doughnuts. How many are two 5's?

2. Alice's father bought 5 doughnuts. How many are five 5's?

Tell how much the girls got when

3. Peter bought 3 doughnuts and paid 3 nickels.

4. Tom bought 1 doughnut.

5. The teachers ordered 9 doughnuts.

6. Ann's mother bought 4 doughnuts.

7. Mrs. Jay took 8 doughnuts home with her.

8. The music teacher bought 6 doughnuts.

9. Mrs. Kane bought 7 doughnuts for a picnic.

Multiply and add, as in "$5 \times 8 + 2 = 42$":

1. $5 \times 6 + 2$.	10. $5 \times 9 + 1$.	19. $8 \times 0 + 4$.
2. $5 \times 9 + 2$.	11. $7 \times 5 + 3$.	20. $5 \times 5 + 1$.
3. $8 \times 5 + 2$.	12. $5 \times 8 + 1$.	21. $5 \times 8 + 3$.
4. $6 \times 5 + 2$.	13. $5 \times 7 + 2$.	22. $5 \times 5 + 3$.
5. $7 \times 5 + 1$.	14. $9 \times 1 + 4$.	23. $8 \times 3 + 4$.
6. $9 \times 5 + 2$.	15. $5 \times 7 + 1$.	24. $5 \times 8 + 4$.
7. $5 \times 7 + 3$.	16. $5 \times 8 + 2$.	25. $5 \times 3 + 4$.
8. $5 \times 5 + 2$.	17. $5 \times 6 + 1$.	26. $9 \times 2 + 4$.
9. $7 \times 5 + 2$.	18. $5 \times 7 + 4$.	27. $5 \times 6 + 4$.

Multiply:

28. 784 × 5	29. 152 × 6	30. 954 × 5	31. 252 × 8	32. 173 × 5
33. 105 × 7	34. 682 × 5	35. 552 × 7	36. 515 × 9	37. 576 × 5
38. 653 × 5	39. 525 × 9	40. 892 × 5	41. 353 × 8	42. 628 × 5
43. 274 × 5	44. 154 × 7	45. 105 × 8	46. 354 × 6	47. 387 × 5

Multiply and then add 3, as "5 × 0 + 3 = 3":

1. 0	3	2	2	1	5	4	3	9	0
5	6	7	5	6	9	5	7	5	6
2. 6	4	2	5	4	1	2	0	5	0
5	7	6	8	6	7	4	7	6	5

Multiply and then add 4 to each product:

3. 3	4	2	1	4	9	4	5	0	5
9	5	8	5	9	5	8	5	9	9

Multiply:

4. 105	5. 525	6. 545	7. 245	8. 598
9	6	8	7	5
9. 105	10. 267	11. 354	12. 405	13. 145
7	5	9	6	6
14. 545	15. 207	16. 135	17. 455	18. 105
9	5	7	6	6
19. 135	20. 147	21. 115	22. 296	23. 249
6	5	6	5	5
24. 567	25. 244	26. 216	27. 343	28. 143
4	9	4	5	7

Give the answers or the missing numbers:

1. 5×9.	**8.** $10 = 5 \times$ ——.	**15.** $5\overline{)10}$
2. $45 \div 5$.	**9.** $35 = 5 \times$ ——.	**16.** $5\overline{)35}$
3. 5×6.	**10.** $20 =$ —— $\times 5$.	**17.** $5\overline{)20}$
4. $30 \div 5$.	**11.** $45 =$ —— $\times 5$.	**18.** $5\overline{)45}$
5. 8×5.	**12.** $30 = 5 \times$ ——.	**19.** $5\overline{)30}$
6. $40 \div 5$.	**13.** $15 = 5 \times$ ——.	**20.** $5\overline{)15}$
7. $35 \div 5$.	**14.** $40 =$ —— $\times 5$.	**21.** $5\overline{)40}$

22. How many nickels are equal to 45¢?

23. Mrs. Ray is making jam. At 5¢ a pound, how many pounds of sugar can she buy for 40¢?

24. John's mother gives him 5¢ each week. In how many weeks will he have 20¢?

25. There are 5 days in a school week. How many school weeks are there in 30 days?

26. At 5¢ each, how many children can ride on the school bus for 45¢?

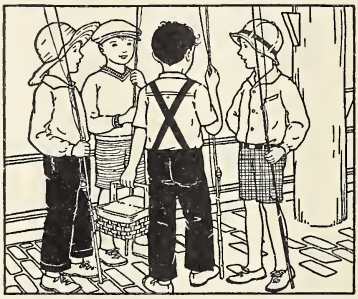
27. In 5 days Nell had 30 new spelling words. How many words did she have each day?

28. Dan found 4 golf balls. Ned gave him 20¢ for them. How much was this apiece?

29. Nan paid 25¢ for some dolls' dishes. At 5¢ apiece, how many dishes did she buy?

1. The carfare to the picnic grounds is 7¢. Tom paid the fares for 4 boys. How much did Tom pay?

2. In the basket there were 16 sandwiches for the 4 boys. How many were there for each boy?



3. Robert's father gave him $1 yesterday. How many quarters are equal to $1?

4. Tom divided 18 pennies equally among Hal, Joe, and Ned. How many pennies did each boy have?

5. At 5¢ a dozen, how many dozen fish hooks can the boys buy with 10¢?

6. At 3¢ each, how many candy bars can you buy with 9¢? with 15¢? with 27¢? with 12¢?

7. Alice has 16 quarters in her bank. How many dollars has she?

8. Candy turkeys cost 5¢ apiece. How many can Dick buy with 15¢? with 25¢?

9. At 4¢ each, how many tops can Joe buy for 12¢?

10. Fred has read 32 pages in a new book. This is 4 times as many as Lee has read. How many pages has Lee read?

11. Ida practices 45 minutes each day on the piano. How many minutes does she practice in 7 days?

12. Frank chops 25 sticks of wood every Saturday. How many sticks will he chop in 5 Saturdays?

13. If each school bus will take 36 children, how many children will 4 busses carry?

14. There are 5 rooms in our school. If each one gives $1.75 to the Red Cross, how much is this?

15. Mr. Lane drove 168 miles on Thursday, 200 miles on Friday, and 180 miles on Saturday. How far did he drive in all?

16. Joe weighs 48 pounds and Hal weighs 13 pounds more than Joe. How much does Hal weigh?

17. Lucy had $1.60. She bought a doll for 75¢. How much money did she have left?

18. On Saturday Ned worked 5 hours. At 20¢ an hour, how much money did he earn?

19. Ann picked 50 boxes of cherries and Sue picked 36 boxes. How many more did Ann pick than Sue?

20. Last fall Mrs. Lee made 35 glasses of jelly. There are 18 glasses left. How many glasses of jelly have been used?

21. There are 387 pupils in the Grant School and 309 in the Jackson School. How many pupils are there in both schools?

See how quickly you can give these answers, first by rows and then by columns:

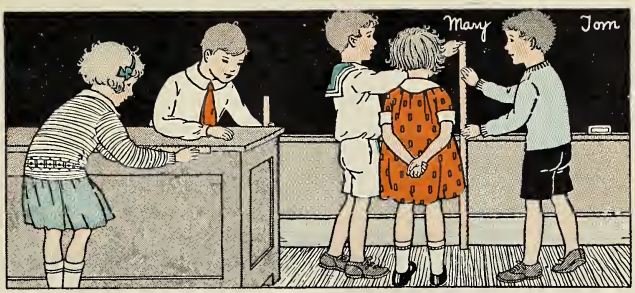
	6.	7.	8.	9.
1.	5×2	$12 \div 3$	$2\overline{)16}$	$9 =$ —— 3's
2.	3×9	$6 \div 2$	$3\overline{)21}$	$14 =$ —— 2's
3.	3×5	$10 \div 2$	$3\overline{)27}$	$8 =$ —— 2's
4.	7×2	$21 \div 3$	$2\overline{)18}$	$4 =$ —— 2's
5.	6×3	$14 \div 2$	$3\overline{)15}$	$18 =$ —— 3's

See if you can give all these answers correctly:

10.	8×2	$8 + 2$	$8 - 2$	$8 \div 2$
11.	3×7	$9 - 2$	2×6	9×3
12.	$9 \div 3$	$6 + 7$	2×8	$18 \div 3$
13.	$5 + 8$	$16 \div 2$	3×4	$6 + 9$
14.	$24 \div 3$	3×6	$15 \div 3$	8×3

See how quickly you can give these answers:

15.	13	9	8	13	9	2	8	8
	-5	$+8$	$\times 1$	-7	$\times 2$	$\times 6$	-3	$\times 3$
16.	8	8	8	9	7	5	17	3
	$+2$	-2	$\times 2$	$+3$	-2	$\times 3$	-8	$\times 9$



The Inch

1. These children are measuring by inches. This line is 1 inch long. _____

2. What part of your thumb is about 1 inch long?

3. On your ruler find 1 inch; find 4 inches.

4. A "foot ruler" is 12 inches long. Your ruler is how many inches long? How many feet long?

Find the length in inches of

5. This page.
6. Your shoe.
7. Your reader.
8. Your step.
9. Your handkerchief.
10. Your longest finger.

On the board draw a line which has a length of

11. 3 inches.
12. 6 inches.
13. 10 inches.
14. 12 inches.
15. 18 inches.
16. 36 inches.

1. Measure a yardstick with a foot ruler. How many feet are there in 1 yard? How many inches?

2. On the board draw a line 1 yard long. Divide it into feet.

3. Divide a line 1 foot long into inches.

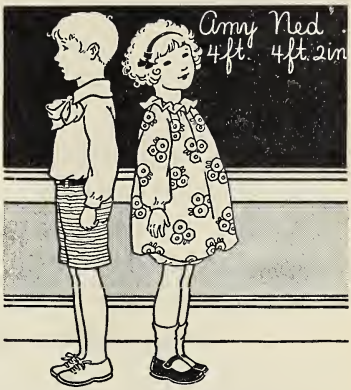
12 inches (in.) = 1 foot (ft.)
3 feet = 1 yard (yd.)
36 inches = 1 yard

Tell the number of feet in

4. 2 yd.
5. 3 yd.
6. 4 yd.
7. 6 yd.
8. 8 yd.
9. 5 yd.
10. 1 yd. 1 ft.
11. 2 yd. 1 ft.

12. Each streamer on the maypole is 15 ft. long. How many yards long is it?

1. Amy is 4 ft. tall and Ned is 4 ft. 2 in. tall. How can you tell which is the taller without having them stand near each other, as in the picture?



2. How much taller is Ned than Amy?

3. How many feet and inches tall are you?

4. Baby Martha is 1 ft. 10 in. tall. How many inches tall is the baby?

Try to tell these heights above the floor, and then measure to see how nearly right you are:

5. The chalk tray.

6. The teacher's desk.

7. Your desk.

8. The window sill.

9. Stand the yardstick against the wall. How high do you think the room is?

10. How long is the room? How wide is it?

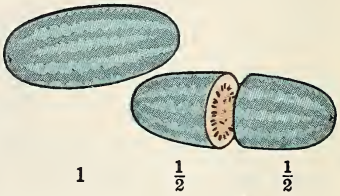
11. Amy's doll is 3 in. less than a foot tall. How many inches tall is it?

12. Ned's big brother is 5 ft. 10 in. tall. How many inches tall is he?

1. Tom and Ned divided a large watermelon into 2 equal parts. What part of the watermelon did each boy have?

2. How many halves were there in the melon? Point to each half.

3. How many halves has an apple? a peach?



4. When we divide anything into **2 equal parts,** each part is called **one half.**

"One half" is often written $\frac{1}{2}$.

5. Fold a sheet of paper through the middle so that the edges are exactly even. Open the paper and write $\frac{1}{2}$ on each of the two parts.

6. Draw a line 1 in. long. Divide it into two equal parts. How long is each part?

Read these:

7. $\frac{1}{2}$ ft. 8. $\frac{1}{2}$ in. 9. $\frac{1}{2}$ yd. 10. $\frac{1}{2}$ of a melon.

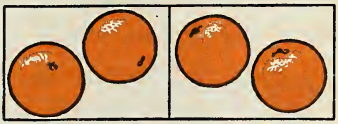
Tell the number of halves in

11. A cake.
12. A loaf of bread.
13. A stick of candy.
14. A candy bar.
15. A glass of milk.
16. A piece of string.

1. Nell found 2 pennies. She divided them with May. How many pennies did each girl have?

2. Read: "2 divided by 2 is 1; $\frac{1}{2}$ of 2 is 1."

3. Ned's mother had 4 oranges. She gave $\frac{1}{2}$ of them to the twins. How many oranges did she have left?



$\frac{1}{2}$ of 4 $\frac{1}{2}$ of 4

4. Read: "4 divided by 2 is 2; $\frac{1}{2}$ of 4 is 2."

5. How many books are 3 books and 3 books? How many books are $\frac{1}{2}$ of 6 books?

6. Two 4's are 8. How much is $\frac{1}{2}$ of 8?

7. Divide 10 by 2. How much is $\frac{1}{2}$ of 10?

To find $\frac{1}{2}$ of a number, divide by 2.

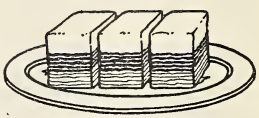
Give the missing numbers:

8. Two 6's are ——.
9. Two 7's are ——.
10. Two 9's are ——.
11. $\frac{1}{2}$ of 12 = ——.
12. $\frac{1}{2}$ of 14 = ——.
13. $\frac{1}{2}$ of 18 = ——.

14. Hal earned \$6. He put $\frac{1}{2}$ of it in the bank. How much did he put in the bank?

15. Fred has 12 marbles. Dick has $\frac{1}{2}$ as many. How many marbles has Dick?

1. Tom, Hal, and Ned had a brick of ice cream. They divided it into 3 equal parts. What part did each boy have?



$\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{3}$

2. What is one of 3 equal parts of anything called?

3. How many thirds has a watermelon? an orange?

"One third" is often written $\frac{1}{3}$.

4. If 6 cakes are divided equally among 3 boys, how many cakes does each boy have?

5. Divide 6 by 3. How much is $\frac{1}{3}$ of 6?

$\frac{1}{3}$ of 6 $\frac{1}{3}$ of 6 $\frac{1}{3}$ of 6

To find $\frac{1}{3}$ of a number, divide by 3.

6. John has 6 pencils and Dick has $\frac{1}{3}$ as many. How many pencils has Dick?

Read, and give the answers:

7. $8+8+8$; 3×8; $\frac{1}{3}$ of 24; $24\div 3$; $3\overline{)24}$.

8. $9+9+9$; 3×9; $\frac{1}{3}$ of 27; $27\div 3$; $3\overline{)27}$.

9. $7+7+7$; 3×7; $\frac{1}{3}$ of 21; $21\div 3$; $3\overline{)21}$.

1. The picture shows a quart bottle of milk, a pint bottle of milk, and a half-pint bottle of cream. What other measures are shown?

2. Fill measures or bottles with water and find how many pints make a quart; how many quarts make a gallon; how many cupfuls (or glassfuls) make a pint.

3. Read and learn this table of **liquid measures**:

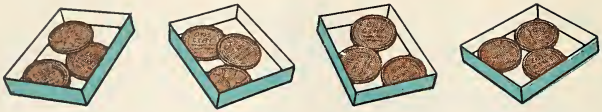
2 cupfuls = 1 pint (pt.)
2 pints = 1 quart (qt.)
4 quarts = 1 gallon (gal.)

Tell the number of

4. Pints in 2 cupfuls; in 1 qt.; in 1 gal.

5. Quarts in 2 gal.; in $\frac{1}{2}$ gal.; in 1 gal. 3 qt.

6. Pints of jam in the 2 glasses in the picture.



$\frac{1}{4}$ of 12 $\frac{1}{4}$ of 12 $\frac{1}{4}$ of 12 $\frac{1}{4}$ of 12

1. How many pennies are there in all the boxes?
2. How many boxes are there?
3. How many pennies are there in each box?
4. What part of all the pennies is in each box?

"One fourth" is often written $\frac{1}{4}$.

5. How much is $12 \div 4$? How much is $\frac{1}{4}$ of 12?

To find $\frac{1}{4}$ of a number, divide by 4.

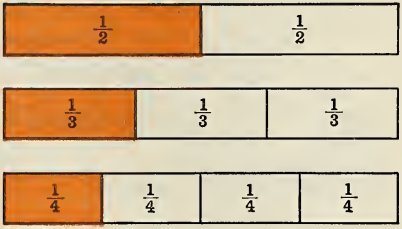
Give the answers quickly:

6. $\frac{1}{4}$ of 8.
7. $\frac{1}{4}$ of 20.
8. $\frac{1}{4}$ of 32.
9. $\frac{1}{4}$ of 24.
10. $\frac{1}{4}$ of 28.
11. $\frac{1}{4}$ of 36.
12. $\frac{1}{4}$ of 4.
13. $\frac{1}{4}$ of 16.

Tell the number of

14. Quarts in 1 gal.
15. Quarts in $\frac{1}{4}$ gal.
16. Pints in $\frac{1}{4}$ gal.
17. Inches in $\frac{1}{4}$ ft.
18. Cupfuls in 1 qt.
19. Cupfuls in $\frac{1}{4}$ qt.

1. The first of these bars has been divided into 2 equal parts. What part of the bar is colored? Point to $\frac{1}{2}$ of the first bar.



2. Into how many equal parts is the second bar divided? Point to $\frac{1}{3}$ of this bar.

3. Point to the bar which is divided into fourths. Then point to $\frac{1}{4}$ of this bar.

4. Which is the longer, $\frac{1}{2}$ of a bar or $\frac{1}{3}$ of it?

5. Which is the greater, $\frac{1}{2}$ or $\frac{1}{4}$? $\frac{1}{3}$ or $\frac{1}{4}$?

6. How many fourths of a bar are equal to $\frac{1}{2}$ of it?

7. How much of the first of these pies is left on the plate? How much of the second? of the third?

8. Point to the largest piece of pie. What part of the pie is it?

9. Which is the larger, $\frac{1}{2}$ of a pie or $\frac{1}{3}$ of the pie? $\frac{1}{3}$ of a pie or $\frac{1}{4}$ of the pie?

10. Half a pie is how many fourths of the pie?

1. The book in the right-hand pan weighs 1 pound. It takes 1 cupful of sand to balance the book. How much does a cupful of sand weigh?

2. Tom finds that his inkwell weighs 1 ounce. It takes 16 inkwells like Tom's to weigh 1 pound. How many ounces are there in 1 pound?

16 ounces (oz.) = 1 pound (lb.)

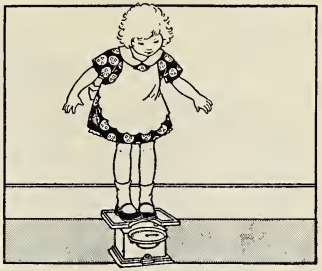
3. If 2 spelling books weigh 1 lb., what part of 1 lb. does each one weigh? How many ounces?

4. A small paintbox weighed $\frac{1}{4}$ lb. This was how many ounces? How much is $\frac{1}{4}$ of 16 oz.?

5. Tom found that it took 4 notebooks to weigh 1 lb. How many ounces did each notebook weigh?

6. Mary's kitten weighed 3 lb. How many ounces did the kitten weigh?

1. When Lucy was one week old, she weighed 7 lb. When she was one year old, she weighed 3 times as much. How many pounds did she weigh then?



2. In one month Lucy gained 1 lb. 8 oz. How many ounces did she gain that month?

3. How much do you weigh now?

4. If you gain 5 lb. each year for 3 years, how much will you gain in all?

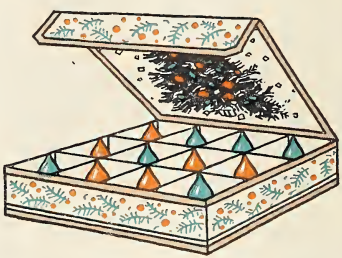
5. Here is a table showing how tall some boys and girls are when they are from seven to nine years old, and how much they weigh for each of these heights:

Age In Years	Height		Weight	
	Boys	Girls	Boys	Girls
7	44 in.	44 in.	48 lb.	47 lb.
8	46 in.	46 in.	52 lb.	50 lb.
9	50 in.	49 in.	57 lb.	55 lb.

Do you weigh more or do you weigh less than what the table gives? How much more or less?

6. How much will you have to gain to weigh 125 lb.? Do you know anyone who weighs about that much?

1. Mrs. Ray bought 1 dozen colored lights to decorate the Christmas tree. The box looked like this. How many lights did she buy?



We call 12 things a dozen.

We often write doz. for "dozen."

2. How many lights are there in $\frac{1}{2}$ doz.? in $\frac{1}{3}$ doz.? in $\frac{1}{4}$ doz.?

3. How many more lights are there in $\frac{1}{2}$ doz. than in $\frac{1}{4}$ doz.? than in $\frac{1}{3}$ doz.?

4. Which is more, $\frac{1}{3}$ doz. or $\frac{1}{4}$ doz.? How many more is it?

5. Fred dropped a box of 1 doz. eggs and broke 3 eggs. How many eggs were left?

6. Fred broke 3 eggs. What part of a dozen did he break? What part of 1 doz. is 3? is 4? is 6?

Tell the number of things that I get if I buy

7. 2 doz. oranges.
8. $\frac{1}{2}$ doz. rolls.
9. $\frac{1}{3}$ doz. pickles.
10. 3 doz. marshmallows.
11. 1 doz. and 2 bananas.
12. 1 doz. and 4 sandwiches.

1. Will has 18 hens and John has $\frac{1}{2}$ as many. How many has John?

2. Will has 18 hens, and $\frac{1}{3}$ of them are red. How many red hens has he?

3. Will had 12 little red bantam chickens. He sold $\frac{1}{2}$ of them. How many chickens did he sell?

4. John had saved $8. He spent $\frac{1}{4}$ of it for corn for the chickens. How many dollars did he spend?

5. The hotel needed 24 doz. eggs, but the boys had only $\frac{1}{3}$ of that number. How many dozen eggs did they have?

6. John set Speckle on 14 eggs, but only $\frac{1}{2}$ of them hatched. How many eggs hatched?

7. John's little red bantam hen has 16 chicks. Topknot has $\frac{1}{4}$ as many. How many chicks has Topknot?

"One fifth" is often written $\frac{1}{5}$.
To find $\frac{1}{5}$ of a number, divide by 5.

Give these answers quickly:

1. 5×2.
2. $10 \div 5$.
3. 5×5.
4. $25 \div 5$.
5. 3×5.
6. $15 \div 5$.
7. $\frac{1}{5}$ of 15.
8. 5×8.
9. $\frac{1}{5}$ of 40.
10. $40 \div 5$.
11. 7×5.
12. $\frac{1}{5}$ of 35.
13. 4×5.
14. $\frac{1}{5}$ of 20.
15. 5×6.
16. $\frac{1}{5}$ of 30.
17. 9×5.
18. $45 \div 5$.
19. $\frac{1}{5}$ of 45.
20. $\frac{1}{5}$ of 25.
21. $\frac{1}{5}$ of 10.
22. $5\overline{)40}$
23. $5\overline{)35}$
24. $5\overline{)20}$
25. $5\overline{)30}$
26. $5\overline{)15}$
27. $5\overline{)25}$
28. $5\overline{)45}$

Give the missing numbers:

29. $45 = 5 \times$ ——.
30. $30 = 5 \times$ ——.
31. $15 = 5 \times$ ——.
32. $40 = 5 \times$ ——.
33. $25 = 5 \times$ ——.
34. —— $= \frac{1}{5}$ of 40.
35. —— $= \frac{1}{5}$ of 35.
36. 2 = —— of 10.
37. 6 = —— of 30.
38. —— $= \frac{1}{5}$ of 25.
39. $\frac{1}{5}$ of 45 is the same as $45 \div$ ——.
40. 35¢ will pay —— 5-cent fares.
41. At 5¢ each, 15¢ will buy —— pencils.
42. 30 in. of ribbon will make —— 5-inch badges.

Multiply rapidly:

1.	9	5	2	4	5	8	3	4
	0	3	8	5	2	4	5	8
2.	3	5	4	5	9	5	2	8
	7	5	9	1	4	0	9	5
3.	5	1	3	6	9	0	4	2
	6	7	8	5	1	8	7	5
4.	3	5	9	5	6	9	7	5
	6	4	3	7	2	5	4	8

5. Draw a square like this. Instead of writing 2×4, 1×1, and so on, in the smaller squares, write only the products.

2×4	1×1	3×2
1×3	5×1	1×7
2×2	3×3	2×1

6. In the square that you make, show that the sum of each of the three columns is $5 \times$ ——.

7. Show that the sum of each of the three cross rows is $3 \times$ ——.

8. Show that the sum of each diagonal is $5 \times$ ——.

Give these answers quickly:

1. 2)2	4)24	5)20	1)2	4)28
2. 1)7	3)15	1)4	2)14	2)18
3. 2)12	5)25	4)16	1)1	3)12
4. 3)21	4)8	5)45	2)8	5)35
5. 3)24	3)6	1)8	3)3	4)32
6. 2)10	5)5	4)4	2)4	5)40
7. 1)6	3)9	1)5	4)20	5)10
8. 1)9	5)15	2)6	1)3	4)36
9. 3)27	4)12	5)30	3)18	2)16

See how quickly you can give these answers:

10. $\frac{1}{2}$ of: 2, 4, 10, 18, 6, 14, 8, 12, 16.
11. $\frac{1}{3}$ of: 3, 9, 15, 12, 6, 21, 24, 18, 27.
12. $\frac{1}{4}$ of: 4, 12, 20, 8, 36, 28, 32, 16, 24.
13. $\frac{1}{5}$ of: 5, 10, 25, 40, 35, 30, 15, 20, 45.

See if you can give these answers correctly:

14. $\frac{1}{5}$ of 35.	17. $\frac{1}{4}$ of 20.	20. $\frac{1}{2}$ of 14.
15. $\frac{1}{4}$ of 36.	18. $\frac{1}{5}$ of 25.	21. $\frac{1}{3}$ of 21.
16. $\frac{1}{2}$ of 18.	19. $\frac{1}{3}$ of 27.	22. $\frac{1}{4}$ of 12.

Review Questions

1. What is the sum of one dollar and twenty-five cents, nine cents, and fifty cents?

2. What is the difference between fifty cents and nineteen cents?

3. How much more than 49¢ is 75¢?

4. How much is 3 times 45¢?

5. Into how many parts is an apple cut when it is divided into thirds?

6. How many fifths are there in an orange?

7. A quart is what part of a gallon?

8. How many inches are there in 1 ft. 7 in.?

9. A foot is what part of a yard?

10. How many eggs are there in 1 doz. eggs?

11. Which is larger, $\frac{1}{3}$ of an apple or $\frac{1}{4}$ of the apple?

12. How many glassfuls of milk are there in 1 pt.?

13. How much is $\frac{1}{2}$ of 16? $\frac{1}{4}$ of 28? $\frac{1}{5}$ of 20?

14. Which is longer, $\frac{1}{2}$ ft. or 9 in.?

15. How many pints are there in 3 qt.?

16. How many quarts are there in 1 gal. 1 qt.?

17. Is 4 one fourth of 12? Is it one third of 12?

18. Which is larger, $\frac{1}{2}$ of 16 or $\frac{1}{3}$ of 21?

19. How many ounces are there in $\frac{1}{4}$ lb.?

1. Beginning with 1, count by 4's until you pass 40. Repeat, beginning with 2 and 3, in turn.

2. Beginning with 1, count by 5's until you pass 50. Repeat, beginning with 2, 3, and 4.

3. Beginning with 1, count by 6's until you pass 60. Repeat, beginning with 2, 3, 4, and 5.

Add, and then check your work:

4.	5.	6.	7.	8.
19	7	54	$1.05	$6.25
58	49	98	4.09	5.96
87	285	445	5.74	1.67
9	67	79	7.96	3.29
28	529	104	3.38	4.93

Subtract, and then check your work:

9.	10.	11.	12.	13.
981	594	830	306	794
605	46	450	27	735

Multiply, and then check your work:

14.	15.	16.	17.	18.
609	729	960	897	782
3	5	4	2	4

19.	20.	21.	22.	23.
543	350	683	819	487
4	3	5	4	3

Without reading the examples aloud, see how quickly you can give the answers:

1. $18 \div 2$.	6. $3\overline{)24}$	11. $45 \div 5$.	16. $2\overline{)4}$
2. $15 \div 5$.	7. $2\overline{)14}$	12. $12 \div 4$.	17. $3\overline{)21}$
3. $27 \div 3$.	8. $3\overline{)6}$	13. $16 \div 2$.	18. $4\overline{)16}$
4. $32 \div 4$.	9. $5\overline{)10}$	14. $9 \div 3$.	19. $3\overline{)18}$
5. $10 \div 2$.	10. $4\overline{)28}$	15. $30 \div 5$.	20. $5\overline{)25}$

See if you can give all the answers correctly:

21. $4\overline{)8}$	26. $15 \div 3$.	31. $5\overline{)35}$	36. $20 \div 5$.
22. $2\overline{)12}$	27. $40 \div 5$.	32. $4\overline{)36}$	37. $28 \div 4$.
23. $4\overline{)24}$	28. $2 \div 2$.	33. $2\overline{)6}$	38. $24 \div 3$.
24. $3\overline{)15}$	29. $21 \div 3$.	34. $5\overline{)5}$	39. $35 \div 5$.
25. $5\overline{)40}$	30. $36 \div 4$.	35. $3\overline{)12}$	40. $18 \div 3$.

Give the answers:

41. $\frac{1}{2}$ of 8.	46. $\frac{1}{4}$ of 16.	51. $\frac{1}{4}$ of 8.
42. $\frac{1}{3}$ of 21.	47. $\frac{1}{5}$ of 30.	52. $\frac{1}{2}$ of 6.
43. $\frac{1}{5}$ of 45.	48. $\frac{1}{2}$ of 18.	53. $\frac{1}{3}$ of 12.
44. $\frac{1}{4}$ of 32.	49. $\frac{1}{3}$ of 24.	54. $\frac{1}{2}$ of 16.
45. $\frac{1}{2}$ of 14.	50. $\frac{1}{5}$ of 15.	55. $\frac{1}{5}$ of 40.

1. Tom's uncle has 206 white hens and 189 brown ones. How many hens has he in all?

2. On Monday Alice and her father drove 276 miles and on Tuesday they drove 248 miles. How much farther did they drive on Monday than on Tuesday?

3. The grocer has 3 barrels of flour, each of which weighs 196 lb. How much do they all weigh?

4. Jack has 36 marbles. If he puts the same number into each of 4 pockets, how many marbles will he have in each pocket?

You have learned what all these mean. See if you can give the meaning of each one:

5. ¢	$\frac{1}{2}$	+	÷	oz.	ft.	pt.
6. $\frac{1}{4}$	×	)	$	in.	lb.	gal.
7. =	$\frac{1}{3}$	−	$\frac{1}{5}$	qt.	yd.	doz.

Tell how many

8. Cupfuls (or glassfuls) there are in 1 pt.

9. Inches there are in 1 ft. and also in 1 yd.

10. Ounces there are in 1 lb. and also in $\frac{1}{2}$ lb.

11. Things there are in 1 doz. and also in $\frac{1}{4}$ doz.

12. Pints there are in 1 qt., and quarts in 1 gal.

13. Feet there are in 1 yd. and also in 2 yd., 5 yd., and 7 yd.

CHAPTER FOUR

HARDER MULTIPLICATION AND DIVISION

I. FOUR-FIGURE NUMBERS

Reading and Writing Numbers

1. Beginning "one thousand," "two thousand," and so on, count by thousands to ten thousand.

> **"Two thousand" is written 2000.**
> **"Ten thousand" is written 10,000.**

2. Beginning 1000, 2000, and so on, write the thousands to 10,000.

3. The number 2548 is read "two thousand five hundred forty-eight." Read 7369; 5814; 8640.

4. The number 2548 is also read "twenty-five hundred forty-eight." We read years in this way. What is the number of this year? of last year?

5. The number 6037 has 0 in hundreds' place. It is read "six thousand thirty-seven." Read 3091.

6. Read 2593; 1948; 3200; 7065; 4004; 5907.

1. Edna is talking to her mother. Their telephone number is Maple 2605. When Edna asked for it, she said, "Maple; two, six, o, five." Zero in a telephone number is read like the letter O. Read the number Main 5079.

Write in figures:

2. Six thousand five hundred forty-one.

3. Three thousand three hundred thirty-three.

4. Five thousand twelve; six thousand four.

5. Nineteen hundred thirty-eight.

Write in words:

6. 5374	3609	7001	6666	9009
7. 9400	4852	8040	1775	1058

Read these statements:

8. Mr. Hill paid $1225.50 for his automobile.

9. There are 1075 children in the Grant School.

10. We sold 1358 tickets for the baseball games.

Write these numbers in sentences, as in Exs. 8 to 10:

11. $1000. 12. $1375. 13. 1050. 14. 4000.

Dividing Three-Figure Numbers

AUNT HELEN sent Ida and May a box of 268 beads and told the girls to divide them equally. How many beads did each girl have?

We divide 268 by 2 like this:

Think "$2 \div 2 = 1$." Write 1.

Think "$6 \div 2 = 3$." Write 3.

Think "$8 \div 2 = 4$." Write 4. The answer is 134.

Ida and May each had 134 beads.

$$2\overline{)268}\quad 134$$

Find the answers:

1. $2\overline{)462}$	2. $3\overline{)693}$	3. $4\overline{)848}$	4. $3\overline{)936}$
5. $3\overline{)996}$	6. $2\overline{)284}$	7. $3\overline{)369}$	8. $4\overline{)884}$
9. $4\overline{)488}$	10. $3\overline{)963}$	11. $2\overline{)846}$	12. $3\overline{)639}$

ANN, Kate, and Amy had 126 pieces of candy. If they divided the candy equally, how many pieces did each girl have?

$$\begin{array}{r} 42 \\ 3\overline{)126} \end{array}$$

In this case, 3 is not contained in 1, the first figure, and so we take the first two figures.

Think "$12 \div 3 = 4$." Write 4 under the 2 in 12.

Think "$6 \div 3 = 2$." Write 2 under the 6.

The answer is 42. Each girl had 42 pieces.

The answer in division is called the **quotient.**

In this example the quotient is 42.

Find the quotients in these cases:

1. $2\overline{)146}$	2. $3\overline{)189}$	3. $5\overline{)255}$	4. $3\overline{)159}$
5. $5\overline{)155}$	6. $3\overline{)156}$	7. $2\overline{)184}$	8. $3\overline{)129}$
9. $2\overline{)162}$	10. $4\overline{)128}$	11. $4\overline{)164}$	12. $3\overline{)153}$
13. $2\overline{)122}$	14. $4\overline{)168}$	15. $2\overline{)148}$	16. $4\overline{)124}$
17. $2\overline{)144}$	18. $3\overline{)246}$	19. $4\overline{)244}$	20. $3\overline{)279}$
21. $2\overline{)168}$	22. $3\overline{)213}$	23. $2\overline{)182}$	24. $2\overline{)166}$
25. $4\overline{)248}$	26. $3\overline{)249}$	27. $4\overline{)284}$	28. $3\overline{)216}$
29. $4\overline{)324}$	30. $3\overline{)276}$	31. $5\overline{)455}$	32. $2\overline{)188}$
33. $5\overline{)355}$	34. $4\overline{)328}$	35. $3\overline{)123}$	36. $4\overline{)364}$
37. $4\overline{)368}$	38. $3\overline{)186}$	39. $4\overline{)288}$	40. $3\overline{)219}$

IN DIVISION the number by which we divide is called the **divisor**, and the number divided is called the **dividend.**

Here is the way to check your work in division:

Multiply the quotient by the divisor; the product will equal the dividend if you have made no mistakes.

Study these two examples and the checks carefully:

Example	Check	Example	Check
3)12 ← Dividend	4 ← Quotient	2)682	341
4 ·	3 ← Divisor	341	2
	12 ← Product		682

Divide, and then check your answer:

1. 5)155	2. 4)328	3. 3)219	4. 5)355
5. 4)284	6. 2)164	7. 3)279	8. 4)364
9. 5)255	10. 3)246	11. 5)455	12. 4)248
13. 4)484	14. 3)639	15. 2)128	16. 4)324
17. 2)846	18. 3)693	19. 4)288	20. 4)368
21. 3)243	22. 2)186	23. 3)273	24. 2)682
25. 4)168	26. 3)969	27. 2)488	28. 4)848
29. 3)189	30. 2)648	31. 4)124	32. 3)636

WE HAVE learned that multiplying zero is the same as multiplying nothing. Dividing zero is the same as dividing nothing, as shown in this work.

For example, divide 80 by 4.

Think "8 ÷ 4 = 2." Write 2.
Think "0 ÷ 4 = 0." Write 0.
The quotient is 20.

$$4\overline{)80}\quad 20$$

CHECK. $4 \times 20 = 80$. The answer 20 is correct.

Dividing zero by any number gives zero.

In dividing 608 by 2, the 0 occurs in tens' place in the number divided.

Think "6 ÷ 2 = 3." Write 3.
Think "0 ÷ 2 = 0." Write 0.
Think "8 ÷ 2 = 4." Write 4.

$$2\overline{)608}\quad 304$$

The quotient is 304. Check this answer in the usual way to see if it is correct.

Divide, and then check your work:

1. $2\overline{)40}$	2. $3\overline{)90}$	3. $4\overline{)80}$	4. $2\overline{)60}$
5. $5\overline{)500}$	6. $4\overline{)808}$	7. $5\overline{)505}$	8. $3\overline{)909}$
9. $3\overline{)360}$	10. $3\overline{)210}$	11. $3\overline{)906}$	12. $4\overline{)360}$
13. $2\overline{)140}$	14. $3\overline{)270}$	15. $5\overline{)250}$	16. $2\overline{)406}$
17. $3\overline{)609}$	18. $4\overline{)800}$	19. $2\overline{)604}$	20. $5\overline{)350}$
21. $5\overline{)450}$	22. $3\overline{)240}$	23. $4\overline{)480}$	24. $2\overline{)806}$

1. Helen bought 4 oranges for 24¢. How much did she pay for each orange?

2. Kate bought 3 handkerchiefs for her mother. She paid 60¢. How much did each handkerchief cost?

3. Mr. Brown planted 84 apple trees in 4 rows. How many trees were there in each row?

4. If 2 watermelons cost 64¢, how much did each one cost?

5. Uncle Tom bought 60 ft. of rope. He wants to make 3 swings of the same size for the girls. How many feet can he use for each swing?

6. The grocer put 48 peaches in 4 baskets of the same size. How many did he put in each basket?

7. If 2 boys sharpened 48 pencils, how many did each boy sharpen?

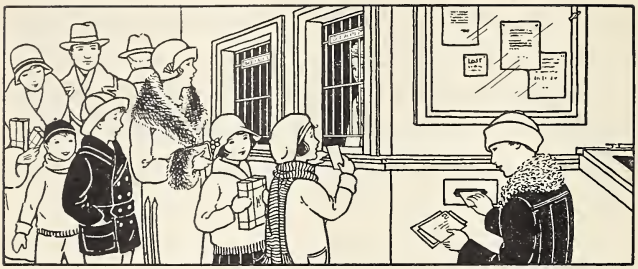
8. Clara's class learns 5 new words a day. How many days will it take them to learn 55 new words?

9. How many kindergarten tables, with 4 pupils at each table, will it take for 40 children?

10. Mr. Jones sold 86 lb. of milk. A quart weighs 2 lb. How many quarts did he sell?

11. The grocer put 120 cans of corn on 3 shelves. How many cans did he put on each shelf?

12. A newsboy sold 155 papers in 5 days. How many papers did he sell each day?



1. Dick is mailing valentines. How much does he pay for five 2-cent stamps? for two 5-cent stamps?

Tell what Sue paid when she bought these stamps:

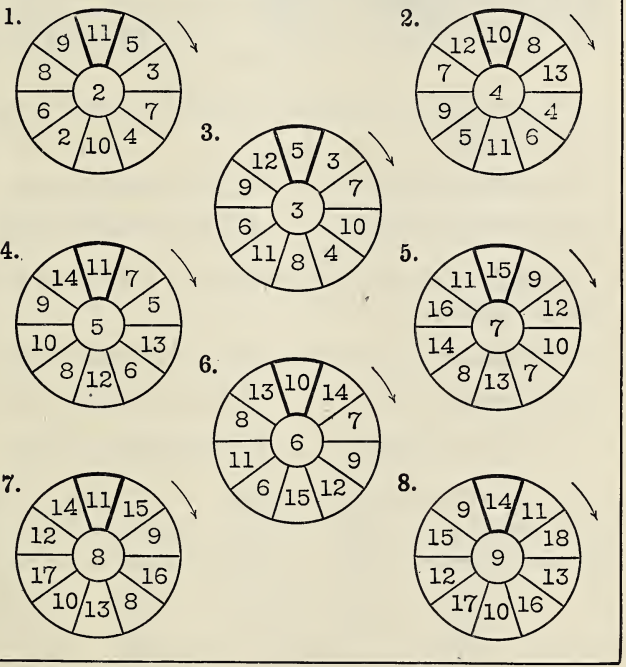
2. Six 2's.
3. Five 3's.
4. Four 5's.
5. Seven 2's.
6. Nine 1's.
7. Nine 3's.
8. Two 5's and a 3; four 2's, a 3, and two 1's.
9. Four 3's and a 2; two 3's, a 2, and three 1's.
10. Five 2's and a 5; two 5's, a 2, and ten 1's.

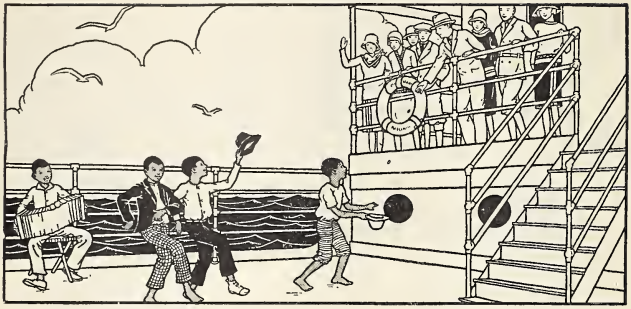
Alice sends a box of candy that takes 13 cents' worth of stamps. Tell what stamps she uses if she puts on

11. A 1-cent stamp and 4 other stamps.
12. A 3-cent stamp and 5 others.
13. A 5-cent stamp and 4 others.
14. A 3-cent stamp and 2 others.
15. A 4-cent stamp and 3 others.

KNOWING these subtraction facts will make division easier. We begin with the number inside the heavy lines and go round the wheel, as shown by the arrow, subtracting the number in the center. We give only the differences, as "9, 3, 1, 5," and so on.

See how quickly you can do all the wheels:





Tell the number of pennies that each boy gets if a man divides equally

1. 21¢ among 3 boys.
2. 20¢ among 4 boys.
3. 24¢ among 4 boys.
4. 14¢ between 2 boys.

Tell how many pennies are left over if the man tries to divide equally

5. 7¢ between 2 boys.
6. 10¢ among 3 boys.
7. 16¢ among 3 boys.
8. 15¢ between 2 boys.
9. 11¢ among 3 boys.
10. 15¢ among 4 boys.

The boys change their pennies into nickels at the ticket office on the boat. Tell how many nickels, and how many pennies over, a boy will have if he changes

11. 11¢.
12. 16¢.
13. 17¢.
14. 21¢.
15. 36¢.
16. 31¢.
17. 43¢.
18. 20¢.
19. 28¢.
20. 30¢.

IF WE divide 7 by 3, we have 2 for the quotient, and there is 1 left over. The 1 which is left over is called the **remainder.**

In 2)7 the answer is **3, and 1 remainder.**

In 2)12 the answer is 6; there is no remainder.

Knowing the subtraction facts in Exs. 1 to 24 will help you in finding remainders.

Reading 14 – 12 as "12 from 14," see how quickly you can give all the answers:

1. 14 – 12 = ?	9. 47 – 45 = ?	17. 38 – 36 = ?
2. 28 – 25 = ?	10. 29 – 27 = ?	18. 34 – 32 = ?
3. 17 – 15 = ?	11. 18 – 16 = ?	19. 39 – 35 = ?
4. 19 – 16 = ?	12. 23 – 20 = ?	20. 20 – 18 = ?
5. 32 – 30 = ?	13. 19 – 15 = ?	21. 44 – 40 = ?
6. 24 – 20 = ?	14. 42 – 40 = ?	22. 37 – 35 = ?
7. 39 – 36 = ?	15. 43 – 40 = ?	23. 30 – 28 = ?
8. 27 – 24 = ?	16. 26 – 24 = ?	24. 27 – 25 = ?

Give the quotients and any remainders:

25.	2)7	2)5	3)10	2)12	3)5	4)16
26.	2)6	2)3	4)13	2)15	4)20	2)13
27.	3)8	4)6	2)18	4)11	2)17	5)30
28.	2)9	5)8	3)13	4)28	3)21	5)46

Give the quotients and the remainders, seeing how long it takes for each row:

1.	3)7	2)9	3)8	2)7	4)11
2.	4)6	2)5	3)13	3)5	5)46
3.	4)9	3)22	3)16	5)11	4)7
4.	2)15	2)17	5)9	4)13	4)30
5.	3)14	3)11	2)11	5)7	3)26
6.	3)20	5)22	2)13	4)10	3)23
7.	4)19	5)14	3)19	4)15	3)25
8.	3)28	4)14	5)12	4)17	5)8
9.	5)34	5)19	2)19	3)17	5)26
10.	5)38	4)29	4)34	3)29	4)21
11.	5)37	4)22	5)21	5)44	5)47
12.	5)13	5)32	4)35	4)33	4)23
13.	5)29	5)23	5)49	5)36	5)48
14.	5)28	5)42	4)38	4)26	5)24
15.	5)33	4)18	4)39	5)31	5)41
16.	4)31	5)18	5)39	5)17	4)25
17.	4)27	5)16	4)37	5)43	5)27

Carrying 1, — No Remainder

WHEN Dick went to the post office to mail his valentines, he asked for 50¢ worth of 2-cent stamps. How many stamps did he buy?

Work	Check
2)50	25
25	2
	50

Think first "5 ÷ 2 = 2, and 1 remainder." Write 2.

Carry 1 to the ones' place; it makes 10.

Think "10 ÷ 2 = 5." Write 5 under the 0 in 50.

The quotient is 25. Dick bought 25 stamps.

The check shows that the answer is right.

Divide, carrying 1 in each case:

1. 2)72	2. 3)45	3. 2)34	4. 3)78
5. 2)96	6. 4)56	7. 2)38	8. 5)60
9. 3)75	10. 2)56	11. 4)92	12. 2)36

13. How many 3-cent stamps can I buy with 42¢?

14. John sold 60¢ worth of lemonade yesterday at 5¢ a glass. How many glasses did he sell?

15. For a Halloween party Ida paid 65¢ for popcorn balls at 5¢ each. How many did she buy?

16. Harry made a shelf 30 in. long. How many big books, each 2 in. thick, will fill the shelf?

YESTERDAY after school Ida picked 54 daisies for her mother and divided them equally into 3 bunches. How many daisies did she put in each bunch?

Work	Check
3)54	18
18	3
	54

$5 \div 3 = 1$, and 2 remainder. Write 1 under the 5.

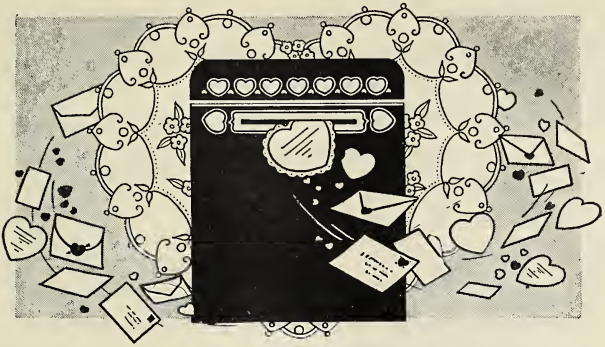
Carry the 2 to the ones' place; it makes 24.

$24 \div 3 = 8$, with no remainder. Write 8 under the 4.

In this example we carried 2. We may have to carry 1, 2, 3, 4, or some larger number; sometimes we do not have to carry at all.

Divide, and then check each answer:

1. 3)87	2. 4)64	3. 5)90	4. 3)57
5. 5)80	6. 4)68	7. 5)85	8. 4)76
9. 3)84	10. 5)95	11. 3)510	12. 2)120
13. 3)135	14. 4)196	15. 2)320	16. 4)144
17. 3)225	18. 4)724	19. 5)955	20. 4)256
21. 4)452	22. 3)810	23. 2)360	24. 3)645
25. 5)750	26. 2)832	27. 4)856	28. 5)575
29. 4)960	30. 5)585	31. 2)698	32. 4)720
33. 2)456	34. 3)420	35. 5)565	36. 3)975



1. The class made a valentine box in 4 equal recess periods. It took them 60 minutes to make the box. How long was each recess period?

2. The girls cut out 96 hearts from red paper. If each of 4 girls made the same number, how many hearts did each girl cut out?

3. They strung an equal number of the 96 hearts on each of 5 strings. How many hearts did they put on each string, and how many were left over?

4. There were 95 valentines in the box. Each of 3 boys gave out the same number. How many valentines did each boy give out, and how many were left?

5. Miss Day brought 197 candy hearts. If she gives 3 hearts to each child, to how many children can she give hearts? How many hearts will be left?

WHEN we are adding or multiplying, we sometimes have to carry more than once. In dividing 582 by 3, as here shown, we have to carry twice.

Example	Check
3)582	194
194	3
	582

$5 \div 3 = 1$, and 2 to carry. Write 1 under the 5.

Carry the 2 to the next place; it makes 28.

$28 \div 3 = 9$, and 1 to carry. Write 9 under the 8.

Carry the 1 to the ones' place; it makes 12.

$12 \div 3 = 4$. Write 4 under the 2.

The quotient is 194. The check shows that this answer is right.

Divide, carrying twice in each case:

1. 3)471	2. 4)540	3. 5)670	4. 3)765
5. 4)536	6. 3)828	7. 4)992	8. 2)972
9. 5)690	10. 4)740	11. 4)692	12. 5)895
13. 5)965	14. 4)784	15. 3)597	16. 5)835
17. 4)668	18. 5)760	19. 3)528	20. 4)732
21. 3)498	22. 2)956	23. 5)995	24. 2)534
25. 2)732	26. 5)685	27. 4)980	28. 3)561
29. 5)820	30. 2)798	31. 3)477	32. 4)592
33. 2)398	34. 4)676	35. 3)852	36. 5)780

Divide, and then check by multiplying:

1. 3)900	2. 5)105	3. 4)608	4. 2)500
5. 4)904	6. 3)450	7. 5)710	8. 3)609
9. 4)280	10. 5)450	11. 4)700	12. 3)840
13. 5)310	14. 3)720	15. 5)320	16. 2)908
17. 4)308	18. 3)207	19. 5)405	20. 2)650

21. Tom can ride 5 miles an hour on his bicycle. How long will it take him to ride 30 miles?

22. Frank's father can walk 4 miles an hour. How long will it take him to walk 20 miles?

23. Ida is packing 108 gum drops in 3 boxes of the same size. How many will she put in each box?

24. Polly was knitting a scarf. She had 300 stitches in 4 rows. How many stitches were there in each row?

25. Helen paid 60¢ for 4 valentines which were just alike. How much did she pay for each one?

26. Our store sold 30 pt. of ice cream yesterday. How many quarts was this?

27. Uncle John paid 90¢ for 2 movie tickets. What was the price of each ticket?

28. Mother baked 60 cookies yesterday. If she should tell 5 boys that they could divide them equally, how many cookies would each boy have?

WE DIVIDE numbers representing dollars and cents the same as we divide other numbers, but we have to watch the decimal points carefully.

2)$1.54	3)$18.00
$0.77	$6.00

In the first of these examples, where is the decimal point in the number divided? Where is the decimal point in the quotient?

How many decimal places do cents have? How are the decimal points placed in the second example?

Place the decimal point in the quotient exactly below the decimal point in the number divided.

Divide, placing the decimal point carefully:

1. 2)$1.20	2. 5)$3.15	3. 3)$1.50	4. 4)$2.56
5. 3)$1.71	6. 4)$2.76	7. 2)$9.00	8. 2)$3.38
9. 3)$1.89	10. 4)$3.56	11. 3)$2.94	12. 5)$4.25
13. 5)$3.90	14. 3)$8.25	15. 2)$5.00	16. 2)$1.14
17. 2)$7.80	18. 5)$4.75	19. 3)$1.35	20. 3)$7.02
21. 5)$1.75	22. 3)$2.34	23. 2)$7.56	24. 5)$20.00
25. 3)$2.58	26. 5)$3.60	27. 3)$3.87	28. 4)$23.00
29. 5)$1.45	30. 4)$7.92	31. 5)$4.70	32. 4)$17.00

How to Solve Problems

BEFORE you try to solve a problem, read it carefully so as to be sure that you understand it, and then ask yourself these four questions:

1. **What am I to find?**
2. **What numbers shall I use?**
3. **Shall I add, subtract, multiply, or divide?**
4. **About how large will the answer be?**

Here are some problems in addition and subtraction for practice. First ask yourself the four questions; then solve the problem and check your answer:

1. Lee sold 15 tickets for a play circus and Joe sold 18. How many tickets did both sell?

2. Ida had 30 birthday candies in a box. After 12 were eaten, how many candies were left?

3. Jim weighs 59 lb. His overcoat weighs 4 lb. How much does Jim weigh with his overcoat on?

4. A book cost 45¢. A paint box cost 15¢ less than the book. How much did the paint box cost?

5. Jack has 27 stamps in his stamp book, and Hal has 25. How many stamps have they both?

6. Our room uses 32 bottles of milk. The milkman has 18 bottles. How many more does he need?

HERE is a harder problem to solve: "Mrs. Cole paid $2.00 for 5 movie tickets. How much did each ticket cost?"

$$5\overline{)\$2.00}$$
$$\$0.40$$

In deciding whether to add, subtract, multiply, or divide, you can think:

"5 tickets cost $2.00; 1 ticket costs $\frac{1}{5}$ of $2.00. In order to find $\frac{1}{5}$ of $2.00, I must divide $2.00 by 5."

The answer is $0.40, or 40¢.

CHECK. $5 \times \$0.40 = \$2.00$. The answer is right.

First tell how to solve each of these problems. Then solve the problem and check the answer:

1. Mrs. Mack paid $5.00 for 2 Indian suits. How much did each suit cost?

2. A school paid $60.00 for 5 desks. How much did the school pay for each desk?

3. John's father earned $20.00 in 5 days. How much did he earn each day?

4. Mr. Brown paid $70.00 in 2 months for house rent. How much rent does he pay each month?

5. A farmer sold 4 doz. eggs for $1.20. How much did he get for each dozen?

6. Roy's uncle bought him 3 toy railroad cars for $1.50. How much did each car cost?

HERE is a new kind of work. The problems have no numbers, but you are to tell how you would solve them if the necessary numbers were given.

Write the numbers 1 to 8 on your paper, and after each one put +, −, ×, or ÷ to show whether you would add, subtract, multiply, or divide in solving Exs. 1 to 8:

1. Paul has $—— and John has $——. How much money have they together?

2. How much more (or less) has Paul than John?

3. The boys have $——. How much more money do they need to buy a radio set that costs $——?

4. The boys plan to share equally the cost of the radio set. How much must each boy pay?

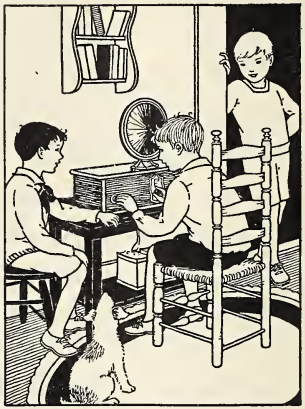
5. Paul works —— hours at ——¢ an hour. How much does he earn in all?

6. On John's birthday his mother gave him $——, his father gave him $——, and Uncle Tom sent him $——. How much did he receive in presents?

7. The boys saw another radio set that cost $——. They plan to save $—— each week. How long will it take them to save the money to buy this set?

8. A group of —— boys plan to buy a radio set, sharing the cost equally. The set costs $——. How much will each boy have to pay?

1. Paul and John want to buy a radio set like Dick's. Paul has \$3 and John has \$2. How much have they together?



2. In Ex. 1, Paul has how much more money than John?

3. The boys want to buy a set that costs \$18. How much more money do they need?

4. The boys plan to share equally the cost of the set in Ex. 3. How much will each pay?

5. Paul cleaned sidewalks for 3 hours at 20¢ an hour. How much did he earn?

6. On John's birthday his mother gave him \$1, his father gave him \$2, and Uncle Tom sent him \$3. How much did John receive in presents?

7. Paul and John saw another radio set that cost \$15. They plan to save \$3 each week. How long will it take them to save the money to buy this set?

8. A group of 4 boys plan to buy a radio set, sharing the cost equally. The set costs \$24. How much will each boy have to pay?

Learning More about 6's

THERE are only 16 more multiplication facts to learn. We have already had 12 multiplication facts about 6's. We shall now learn 7 new ones.

1. Here are four columns with 6 equal numbers in each column. Add them.

2. How many are six 6's? six 7's? six 8's? six 9's?

3. You can see that $6 \times 7 = 42$. How many are 7×6?

4. How many are 6×8? 8×6?

5. How many are 6×9? 9×6?

6	7	8	9
6	7	8	9
6	7	8	9
6	7	8	9
6	7	8	9
6	7	8	9

Read, and give the missing number in each case:

6. Six 6's = ——.
7. Six 8's = ——.
8. Six 7's = ——.
9. Six 9's = ——.
10. $6 \times$ —— $= 54$.
11. —— $\times 6 = 42$.
12. $36 =$ —— $\times 6$.
13. $48 = 6 \times$ ——.

Find the cost of six

14. 9-cent cakes.
15. 4-cent cards.
16. 7-cent rides.
17. 6-cent horns.
18. 5-cent stamps.
19. 8-cent oranges.
20. 3-cent erasers.
21. 2-cent whistles.

Give the answers rapidly:

1. 0×6.	5. 6×3.	9. 6×5.	13. 1×6.
2. 8×6.	6. 3×6.	10. 6×6.	14. 6×8.
3. 6×2.	7. 6×4.	11. 7×6.	15. 9×6.
4. 2×6.	8. 4×6.	12. 6×7.	16. 6×9.

17. Be sure that you know all of this table of 6's:

$1 \times 6 = 6$	$4 \times 6 = 24$	$7 \times 6 = 42$
$2 \times 6 = 12$	$5 \times 6 = 30$	$8 \times 6 = 48$
$3 \times 6 = 18$	$6 \times 6 = 36$	$9 \times 6 = 54$

18. How many are 6×0? 0×6? 6×10? 10×6?

Give the missing numbers:

19. Nine 6's = ——.	23. $6 \times$ —— $= 48$.
20. Seven 6's = ——.	24. $54 =$ —— $\times 6$.
21. Eight 6's = ——.	25. $42 = 6 \times$ ——.
22. Six 6's = ——.	26. $3 \times$ —— $= 18$.

Multiply as rapidly as you can:

27.	3	6	8	2	6	7	6	9
	6	0	6	6	4	6	1	6
28.	6	6	4	6	5	6	6	6
	7	6	6	9	6	8	3	5

These examples help to make carrying easy. Multiply and add, as in "$8 \times 6 + 2 = 50$":

1. $7 \times 6 + 1$.	8. $7 \times 3 + 4$.	15. $6 \times 7 + 1$.
2. $6 \times 9 + 1$.	9. $8 \times 6 + 3$.	16. $9 \times 0 + 5$.
3. $7 \times 0 + 4$.	10. $6 \times 3 + 4$.	17. $7 \times 6 + 2$.
4. $7 \times 4 + 4$.	11. $7 \times 5 + 4$.	18. $6 \times 9 + 2$.
5. $9 \times 1 + 5$.	12. $7 \times 6 + 4$.	19. $9 \times 6 + 3$.
6. $6 \times 7 + 3$.	13. $6 \times 8 + 2$.	20. $6 \times 7 + 2$.
7. $6 \times 6 + 1$.	14. $7 \times 6 + 3$.	21. $9 \times 6 + 1$.

22. Jane bought 9 pencils at 6¢ each and had 1¢ left. How much money did she have at first?

23. Ned bought 6 stamps at 2¢ each and had 3¢ left. How much money did he have at first?

24. Helen bought 6 ice-cream cones at 5¢ each and had 5¢ left. How much did she have at first?

25. Rob bought 7 firecrackers at 6¢ each and had 3¢ left. How much did he have at first?

26. Grandfather gave 5¢ to each of 7 boys and had 4¢ left. How much did he have at first?

27. Mrs. Jenks gave 6 boys 3 cookies apiece and had 4 left. How many cookies were there at first?

28. How much money must Ada have in order to buy 6 cakes at 7¢ each and have 1¢ left?

Multiply and add:

1. $8\times6+4$.	6. $9\times5+5$.	11. $6\times8+1$.
2. $6\times8+3$.	7. $8\times6+1$.	12. $9\times3+5$.
3. $6\times6+3$.	8. $9\times4+5$.	13. $6\times3+5$.
4. $7\times2+4$.	9. $7\times1+4$.	14. $9\times6+2$.
5. $6\times6+2$.	10. $9\times2+5$.	15. $6\times9+3$.

Multiply and then add 4 to each product:

16. 8	4	9	0	7	5	1	6	6	2
6	6	6	6	6	6	6	6	9	6

Multiply and then add 5 to each product:

17. 5	9	2	8	1	6	4	6	0	7
6	6	6	6	6	9	6	6	6	6

Multiply:

18. 58	19. 306	20. 265	21. 307	22. 609
6	9	6	6	6
23. 94	24. 607	25. 939	26. 914	27. 165
6	6	6	6	9
28. 87	29. 196	30. 165	31. 207	32. 263
6	6	8	6	9

Give the answers or the missing numbers:

1. 6×9.
2. 7×6.
3. 6×5.
4. 8×6.
5. 6×2.
6. 6×6.
7. $6 \times \text{——} = 54$.
8. $42 = \text{——} \times 6$.
9. $\text{——} \times 6 = 18$.
10. $6 \times \text{——} = 48$.
11. $54 = 6 \times \text{——}$.
12. $\text{——} \times 6 = 24$.
13. $54 = \text{——}$ 6's.
14. $18 = \text{——}$ 6's.
15. —— = six 6's.
16. 24 = four ——.
17. $48 = \text{——}$ 6's.
18. $42 = \text{——}$ 6's.

Give the answers rapidly:

19. $6 \div 6$.
20. $54 \div 6$.
21. $48 \div 6$.
22. $30 \div 6$.
23. $24 \div 6$.
24. $6\overline{)42}$
25. $6\overline{)18}$
26. $6\overline{)36}$
27. $6\overline{)6}$
28. $6\overline{)24}$
29. $18 \div 6$.
30. $42 \div 6$.
31. $0 \div 6$.
32. $36 \div 6$.
33. $12 \div 6$.
34. $6\overline{)0}$
35. $6\overline{)48}$
36. $6\overline{)30}$
37. $6\overline{)12}$
38. $6\overline{)54}$

"One sixth" is often written $\frac{1}{6}$.
To find $\frac{1}{6}$ of a number, divide by 6.

Give the answer in each of these cases:

39. $\frac{1}{6}$ of 42.
40. $\frac{1}{6}$ of 18.
41. $\frac{1}{6}$ of 54.
42. $\frac{1}{6}$ of 12.
43. $\frac{1}{6}$ of 36.
44. $\frac{1}{6}$ of 48.
45. $\frac{1}{6}$ of 6.
46. $\frac{1}{6}$ of 24.
47. $\frac{1}{6}$ of 30 boys.
48. $\frac{1}{6}$ of 54 books.
49. $\frac{1}{6}$ of 36 apples.
50. $\frac{1}{6}$ of 18 dimes.

These subtraction examples will help you in dividing by 6. Read, and give the answers rapidly:

1. 17 – 12.	9. 50 – 48.	17. 10 – 6.
2. 44 – 42.	10. 56 – 54.	18. 22 – 18.
3. 35 – 30.	11. 23 – 18.	19. 47 – 42.
4. 57 – 54.	12. 41 – 36.	20. 53 – 48.
5. 51 – 48.	13. 21 – 18.	21. 16 – 12.
6. 28 – 24.	14. 46 – 42.	22. 52 – 48.
7. 11 – 6.	15. 58 – 54.	23. 59 – 54.
8. 29 – 24.	16. 40 – 36.	24. 45 – 42.

Give the quotients and any remainders:

25.	6)8	6)13	6)7	6)57	6)9
26.	6)14	6)21	6)27	6)23	6)59
27.	6)22	6)10	6)39	6)41	6)50
28.	6)31	6)29	6)15	6)58	6)28
29.	6)19	6)37	6)38	6)11	6)43
30.	6)34	6)44	6)47	6)26	6)56
31.	6)40	6)52	6)20	6)35	6)49
32.	6)17	6)55	6)33	6)32	6)46
33.	6)25	6)16	6)45	6)51	6)53

1. Helen's mother bought 4 doz. eggs. How many eggs did she buy?

2. The 3 children divided the 4 doz. eggs equally. How many eggs did each child have?

3. Helen bought 6 packages of dye at 9¢ a package. How much did the dye cost?

4. Helen gave the clerk 5 dimes and 1 nickel to pay for the dye. How much change did she get?

5. The children dyed $\frac{1}{6}$ of the 4 doz. eggs green. How many eggs were dyed green?

6. They dyed $\frac{1}{2}$ of all the eggs red. How many eggs were dyed red?

7. They dyed $\frac{1}{3}$ of all the eggs blue. How many eggs were dyed blue?

8. When they boiled the eggs, $\frac{1}{4}$ doz. of them cracked. How many eggs cracked?

1. Carl tied 31 radishes in bunches of 6. How many bunches did he have, and how many radishes were left over?

2. Dora has 27¢. How many 6-cent valentines can she buy, and how much will she have left?

3. Helen paid 90¢ for 6 yd. of red ribbon. How much did it cost a yard?

4. Will divided 84 eggs equally among 6 hens. How many eggs did each hen have?

5. In 6 hours Fred rode 210 miles on the train. How many miles did he go each hour?

6. John saved the same amount of money each week. In 6 weeks he saved $6.90. How much did he save each week?

7. In 6 boxes there were 864 pieces of chalk. How many pieces were there in each box?

Find the quotients:

8. 6)132	9. 6)336	10. 6)900	11. 6)474
12. 6)576	13. 6)510	14. 6)534	15. 6)558
16. 6)294	17. 6)228	18. 6)432	19. 6)426
20. 6)342	21. 6)324	22. 6)522	23. 6)588

1. What day of the week is today? What day of the month is it?

2. The days of the week are **Sunday, Monday, Tuesday, Wednesday, Thursday, Friday,** and **Saturday.** How many days are there in a week?

3. Read and learn these names of the months:

1. January	5. May	9. September
2. February	6. June	10. October
3. March	7. July	11. November
4. April	8. August	12. December

4. How many months are there in a year?

24 hours (hr.) = 1 day (da.)
7 days = 1 week (wk.)
12 months (mo.) = 1 year (yr.)

5. A month is about 4 wk. How many days are there in 4 wk.?

6. Read and learn this rime about the months:

Thirty days hath September,
April, June, and November.

7. The rest of the months, except February (which has 28 da. or 29 da.), have 31 da. Name these months.

1. The children are counting the days until Washington's birthday. In this calendar, what day of the week is February 22?

2. Lincoln's birthday is February 12. This is how many days before Washington's birthday?

3. February 27 is Longfellow's birthday. How many days is this after Washington's birthday?

4. In this calendar the second Monday in February is Valentine's Day. Tell what day of the month it is.

5. February is the shortest month of the year. How many days does it have this year? next year?

Read these birthday dates:

6. May 5, 1920.
7. April 17, 1860.
8. June 25, 1922.
9. July 4, 1776.
10. August 9, 1693.
11. March 11, 1885.
12. January 21, 1865.
13. September 15, 1924.

1. Here are three columns with 7 equal numbers in each column. Add them.

7	8	9
7	8	9
7	8	9
7	8	9
7	8	9
7	8	9
7	8	9

2. How many are seven 7's? seven 8's? seven 9's?

3. $7 \times 8 = 56$. 8×7 are how many?

4. How many are 7×9? 9×7?

5. What is the cost of seven 8-cent stamps? of nine 7-cent stamps?

Read and give the missing number in each case:

6. Seven 8's = ——.

7. Seven 7's = ——.

8. Seven 9's = ——.

9. —— $\times 7 = 63$.

10. —— $\times 7 = 49$.

11. $56 = 7 \times$ ——.

12. Be sure that you know all of this table of 7's:

$1 \times 7 = 7$	$4 \times 7 = 28$	$7 \times 7 = 49$
$2 \times 7 = 14$	$5 \times 7 = 35$	$8 \times 7 = 56$
$3 \times 7 = 21$	$6 \times 7 = 42$	$9 \times 7 = 63$

Give the answers quickly:

13. 8×7.	17. 7×5.	21. 9×7.	25. 2×7.
14. 3×7.	18. 7×6.	22. 7×1.	26. 7×7.
15. 7×2.	19. 4×7.	23. 7×8.	27. 7×9.
16. 6×7.	20. 7×3.	24. 7×0.	28. 1×7.

Give the answers or the missing numbers:

1. 7×9.	9. —— $\times 9 = 63$.	17. $56 = 7 \times$ ——.
2. 9×7.	10. —— $\times 7 = 63$.	18. $49 =$ —— 7's.
3. 7×8.	11. —— $\times 7 = 56$.	19. $63 = 7 \times$ ——.
4. 8×7.	12. —— $\times 7 = 49$.	20. $56 =$ —— 7's.
5. 7×7.	13. —— $\times 6 = 42$.	21. $21 = 7 \times$ ——.
6. 7×6.	14. —— $\times 3 = 21$.	22. $63 =$ —— 7's.
7. 7×3.	15. —— $\times 8 = 56$.	23. $14 = 7 \times$ ——.
8. 7×4.	16. —— $\times 4 = 28$.	24. $42 =$ —— 7's.

25. Jim had a vacation of 7 wk. There are 7 da. in a week. How many days' vacation did he have?

26. Amy made a wall of blocks. There were 7 rows of 9 blocks each. How many blocks were there?

27. How many days are there in 6 wk.?

28. Amy bought 7 lb. of powdered sugar at 8¢ a pound. How much did she pay for it?

At 7¢ each, find the cost of

29. 6 tickets.	**32.** 3 trains.	**35.** 8 horns.
30. 2 lemons.	**33.** 4 crayons.	**36.** 5 boats.
31. 9 candles.	**34.** 7 balloons.	**37.** No apples.

38. Find the cost of seven 6-cent pencils; of seven 4-cent papers; of seven 8-cent dolls.

These examples help to make carrying in multiplication easy. Multiply and add:

1. $7\times7+1$.	10. $9\times7+2$.	19. $9\times7+3$.
2. $7\times8+2$.	11. $8\times7+3$.	20. $9\times7+5$.
3. $8\times0+5$.	12. $7\times7+3$.	21. $8\times2+5$.
4. $9\times7+4$.	13. $7\times9+2$.	22. $7\times0+6$.
5. $7\times9+6$.	14. $7\times8+1$.	23. $9\times6+6$.
6. $7\times7+2$.	15. $8\times7+2$.	24. $7\times3+5$.
7. $7\times9+3$.	16. $7\times9+1$.	25. $9\times7+6$.
8. $8\times7+5$.	17. $7\times7+4$.	26. $7\times3+6$.
9. $7\times8+3$.	18. $7\times9+4$.	27. $7\times0+5$.

Multiply and then add 6 to each product:

28.	1	9	4	6	5	7	2	8
	7	7	7	7	7	7	7	7

Multiply and then add 5 to each product:

29.	2	4	7	1	8	5	9	6
	7	7	7	7	7	7	7	7

Find the products:

30.	72	31.	84	32.	93	33.	76	34.	74	35.	65
	7		7		7		9		8		7

Multiply:

1. 607 × 7	2. 138 × 7	3. 254 × 7	4. 173 × 6	5. 718 × 5
6. 174 × 9	7. 239 × 7	8. 917 × 6	9. 809 × 7	10. 357 × 8
11. 749 × 4	12. 857 × 6	13. 716 × 7	14. 857 × 4	15. 867 × 3

Give the answers or the missing numbers:

16. 8×7. 18. 49 = —— 7's. 20. 63 = —— 7's.
17. 5×7. 19. 21 = —— 7's. 21. 42 = —— 7's.

Give the answers:

22. $49 \div 7$. 25. $7 \div 7$. 28. $7\overline{)0}$ 31. $7\overline{)7}$
23. $14 \div 7$. 26. $21 \div 7$. 29. $7\overline{)35}$ 32. $7\overline{)28}$
24. $56 \div 7$. 27. $63 \div 7$. 30. $7\overline{)42}$ 33. $7\overline{)63}$

> **"One seventh" is often written $\frac{1}{7}$.**
> **To find $\frac{1}{7}$ of a number, divide by 7.**

Give the answer in each of these cases:

34. $\frac{1}{7}$ of 56. 36. $\frac{1}{7}$ of 28. 38. $\frac{1}{7}$ of 63. 40. $\frac{1}{7}$ of 7.
35. $\frac{1}{7}$ of 14. 37. $\frac{1}{7}$ of 49. 39. $\frac{1}{7}$ of 21. 41. $\frac{1}{7}$ of 42.

These subtraction examples will help you in dividing by 7. Read, and give the answers rapidly:

1. 40 – 35.	7. 59 – 56.	13. 34 – 28.
2. 55 – 49.	8. 51 – 49.	14. 62 – 56.
3. 58 – 56.	9. 41 – 35.	15. 20 – 14.
4. 60 – 56.	10. 54 – 49.	16. 33 – 28.
5. 32 – 28.	11. 68 – 63.	17. 53 – 49.
6. 52 – 49.	12. 61 – 56.	18. 69 – 63.

Give the quotients and any remainders:

19.	7)18	7)31	7)48	7)30	7)62
20.	7)55	7)43	7)15	7)23	7)39
21.	7)24	7)47	7)22	7)61	7)68
22.	7)13	7)19	7)33	7)58	7)46
23.	7)53	7)60	7)57	7)50	7)25
24.	7)26	7)40	7)20	7)67	7)45
25.	7)65	7)69	7)16	7)27	7)41
26.	7)34	7)59	7)37	7)52	7)38
27.	7)32	7)17	7)44	7)51	7)29
28.	7)54	7)66	7)64	7)28	7)42

1. The Girl Scouts camped 14 da. How many weeks did they camp?

2. February usually has 28 da. How many weeks are there usually in February?

3. There are 30 da. in June. How many weeks, and how many days over, are there in June?

4. August has 31 da. How many weeks, and how many days over, are there in August?

5. At \$7 each, how many baseball suits can be bought with \$63?

6. How many weeks are there in 196 da.?

7. Nancy has 133 pages to read in her book. If she reads 7 pages a day, in how many days will she finish the book?

Find the quotients:

8. 7)126	9. 7)119	10. 7)133	11. 7)294
12. 7)245	13. 7)203	14. 7)238	15. 7)448
16. 7)399	17. 7)630	18. 7)343	19. 7)497
20. 7)595	21. 7)441	22. 7)644	23. 7)483
24. 7)406	25. 7)679	26. 7)616	27. 7)532
28. 7)392	29. 7)266	30. 7)588	31. 7)623

1. Read these numbers which are seen on clocks:

1	2	3	4	5	6
I	II	III	IIII or IV	V	VI
7	8	9	10	11	12
VII	VIII	IX	X	XI	XII

2. The I before V or X is subtracted; that is, IV means 5 – 1. What does IX mean?

3. Read the Roman numerals on the 16 books.

4. Read these Roman numerals that would be used in numbering Chapters 15 to 20 in a book:

XV XVI XVII XVIII XIX XX

5. Write in common numerals:

IV VI IX XI VII XVII XII XIX

6. Write in Roman numerals:

4 6 8 10 11 7 12 19 20 16 18

1. The short hand on the clock tells the hour. It takes this hand just 1 hr. to go from one number to the next. The long hand tells the minutes. At 3 o'clock the minute hand points to 12, and the hour hand points to 3. Where are the minute hand and the hour hand at 4 o'clock? at 6 o'clock? at 10 o'clock?

2. In this picture, to what number does the minute hand point? What number has the hour hand just passed? It is 5 minutes past 10 o'clock by this clock.

3. It takes the minute hand of a clock 5 minutes to go from one number to the next. Point to each number on the clockface and count by 5's, saying "5" at 1, "10" at 2, and so on around to 12.

4. The minute hand moves round the clockface once in 1 hr. How many minutes are there in 1 hr.?

5. How many hours does it take the hour hand to go all the way round the clockface?

6. How many minutes past the hour is it when the minute hand points to 4? to 6?

7. What time is it when the hour hand points to a little past 10 and the minute hand points to 3?

8. What time is it when the hour hand points to a little past 2 and the minute hand points to 5?

1. What were you doing yesterday at the time that each of these clockfaces shows?

2. Draw four clockfaces. Put in the hands so that they will show the time for (1) reading, (2) arithmetic, (3) language, and (4) play and games.

60 minutes (min.) = 1 hour (hr.)
24 hours = 1 day (da.)

3. How many minutes are there in $\frac{1}{2}$ of 60 min.?

4. When it is half past eight, it is how many minutes past 8 o'clock?

5. How many minutes are there in $\frac{1}{4}$ of 60 min.?

6. When it is quarter past ten, it is how many minutes past 10 o'clock?

Give these answers:

7. $\frac{1}{2}$ of 60.
8. $\frac{1}{2}$ of 24.
9. $\frac{1}{4}$ of 60.
10. $\frac{1}{3}$ of 24.
11. $\frac{1}{6}$ of 60.
12. $\frac{1}{6}$ of 24.
13. $\frac{1}{5}$ of 60.
14. $\frac{1}{4}$ of 24.
15. $\frac{1}{3}$ of 60.
16. $\frac{1}{3}$ of 15.
17. $\frac{1}{5}$ of 15.
18. $\frac{1}{5}$ of 45.

1. Beginning with 1, count by 6's until you pass 70. Repeat, beginning with 2, 3, 4, 5, and 6.

2. Beginning with 1, count by 7's until you pass 80. Repeat, beginning with 3, 4, 5, 6, and 7.

Multiply, and then check your work:

3. $\begin{array}{r} 724 \\ \times\ 3 \\ \hline \end{array}$	4. $\begin{array}{r} 347 \\ \times\ 6 \\ \hline \end{array}$	5. $\begin{array}{r} 809 \\ \times\ 7 \\ \hline \end{array}$	6. $\begin{array}{r} 687 \\ \times\ 5 \\ \hline \end{array}$	7. $\begin{array}{r} 769 \\ \times\ 1 \\ \hline \end{array}$
8. $\begin{array}{r} 938 \\ \times\ 2 \\ \hline \end{array}$	9. $\begin{array}{r} 759 \\ \times\ 4 \\ \hline \end{array}$	10. $\begin{array}{r} 609 \\ \times\ 6 \\ \hline \end{array}$	11. $\begin{array}{r} 637 \\ \times\ 7 \\ \hline \end{array}$	12. $\begin{array}{r} 549 \\ \times\ 5 \\ \hline \end{array}$
13. $\begin{array}{r} 265 \\ \times\ 7 \\ \hline \end{array}$	14. $\begin{array}{r} 258 \\ \times\ 6 \\ \hline \end{array}$	15. $\begin{array}{r} 418 \\ \times\ 7 \\ \hline \end{array}$	16. $\begin{array}{r} 486 \\ \times\ 4 \\ \hline \end{array}$	17. $\begin{array}{r} 689 \\ \times\ 3 \\ \hline \end{array}$
18. $\begin{array}{r} 617 \\ \times\ 2 \\ \hline \end{array}$	19. $\begin{array}{r} 359 \\ \times\ 3 \\ \hline \end{array}$	20. $\begin{array}{r} 459 \\ \times\ 2 \\ \hline \end{array}$	21. $\begin{array}{r} 739 \\ \times\ 7 \\ \hline \end{array}$	22. $\begin{array}{r} 759 \\ \times\ 6 \\ \hline \end{array}$

Divide, and then check your work:

23. $2\overline{)700}$	24. $7\overline{)581}$	25. $4\overline{)936}$	26. $6\overline{)558}$
27. $7\overline{)329}$	28. $3\overline{)288}$	29. $6\overline{)282}$	30. $7\overline{)644}$
31. $5\overline{)945}$	32. $6\overline{)516}$	33. $6\overline{)900}$	34. $4\overline{)356}$
35. $5\overline{)335}$	36. $7\overline{)455}$	37. $3\overline{)261}$	38. $4\overline{)304}$
39. $2\overline{)996}$	40. $4\overline{)236}$	41. $5\overline{)670}$	42. $6\overline{)372}$

1. Write eight 8's in a column. Find the sum. How many are 8×8?

2. Write eight 9's in a column. Find the sum. How many are 8×9? How many are 9×8?

Give the answers or the missing numbers:

3. 8×9.	9. $8 \times 6 =$ ——.	15. $8 \times$ —— $= 0$.
4. 8×8.	10. $8 \times 4 =$ ——.	16. $8 \times$ —— $= 32$.
5. 8×5.	11. $8 \times 1 =$ ——.	17. $8 \times$ —— $= 56$.
6. 8×2.	12. $8 \times$ —— $= 40$.	18. $8 \times$ —— $= 72$.
7. 8×7.	13. $8 \times$ —— $= 16$.	19. $8 \times$ —— $= 48$.
8. 8×3.	14. $8 \times$ —— $= 24$.	20. $8 \times$ —— $= 64$.

21. Be sure that you know all of this table of 8's:

$1 \times 8 = 8$	$4 \times 8 = 32$	$7 \times 8 = 56$
$2 \times 8 = 16$	$5 \times 8 = 40$	$8 \times 8 = 64$
$3 \times 8 = 24$	$6 \times 8 = 48$	$9 \times 8 = 72$

22. How many are 8×0? 0×8? 8×9? 9×8?

Tell the cost of

23. Eight 9-cent pails.
24. Six 8-cent balls.
25. Eight 7-cent cakes.
26. Eight 8-cent books.
27. Eight 6-cent cards.
28. Seven 8-cent toys.
29. Five 8-cent caps.
30. Eight 3-cent pencils.

These examples help to make carrying in multiplication easy. Multiply and add:

1. $8 \times 8 + 4$.	7. $8 \times 9 + 3$.	13. $8 \times 8 + 3$.
2. $8 \times 9 + 1$.	8. $9 \times 8 + 7$.	14. $9 \times 8 + 3$.
3. $8 \times 8 + 2$.	9. $8 \times 9 + 5$.	15. $8 \times 9 + 4$.
4. $8 \times 9 + 2$.	10. $9 \times 8 + 4$.	16. $9 \times 8 + 1$.
5. $8 \times 8 + 5$.	11. $8 \times 7 + 4$.	17. $8 \times 7 + 1$.
6. $9 \times 8 + 6$.	12. $9 \times 8 + 5$.	18. $9 \times 8 + 2$.

Multiply and then add 7 to each product:

19. 1	8	5	7	3	6	2	9	4	0
8	8	8	8	8	8	8	8	8	8

Multiply and then add 6 to each product:

20. 7	4	1	6	8	9	5	0	3	2
8	8	8	8	8	8	8	8	8	8

Multiply:

21. 908	22. 721	23. $6.35	24. 658	25. 489
8	8	8	7	8
26. 978	27. 859	28. $7.89	29. 478	30. 978
4	6	3	6	7

Multiply:

1. 709	2. 186	3. 807	4. 357	5. 186
8	8	9	8	9

Give the answers or the missing numbers:

6. 2×8.	9. $32 =$ —— 8's.	12. $56 =$ —— 8's.
7. 5×8.	10. $48 =$ —— 8's.	13. $40 =$ —— 8's.
8. 8×8.	11. $24 =$ —— 8's.	14. $16 =$ —— 8's.

Give the answers rapidly:

15. $64 \div 8$.	21. $8\overline{)56}$	27. $72 \div 8$.	33. $8\overline{)0}$
16. $16 \div 8$.	22. $8\overline{)8}$	28. $40 \div 8$.	34. $8\overline{)48}$
17. $48 \div 8$.	23. $8\overline{)40}$	29. $64 \div 8$.	35. $8\overline{)32}$
18. $56 \div 8$.	24. $8\overline{)64}$	30. $32 \div 8$.	36. $8\overline{)56}$
19. $8 \div 8$.	25. $8\overline{)16}$	31. $0 \div 8$.	37. $8\overline{)24}$
20. $24 \div 8$.	26. $8\overline{)24}$	32. $56 \div 8$.	38. $8\overline{)72}$

"One eighth" is often written $\frac{1}{8}$.
To find $\frac{1}{8}$ of a number, divide by 8.

Give the answer in each of these cases:

39. $\frac{1}{8}$ of 8.	41. $\frac{1}{8}$ of 56.	43. $\frac{1}{8}$ of 32.	45. $\frac{1}{8}$ of 64.
40. $\frac{1}{8}$ of 72.	42. $\frac{1}{8}$ of 24.	44. $\frac{1}{8}$ of 16.	46. $\frac{1}{8}$ of 40.

1. With what three measures are these children measuring nuts?

2. **Dry measures** are used in measuring grain, seed, fruits, and vegetables. Read and learn this table:

2 pints (pt.) = 1 quart (qt.)
8 quarts = 1 peck (pk.)
4 pecks = 1 bushel (bu.)

3. How many pecks are there in 3 bu. of potatoes?

4. The children have 8 pk. of nuts. How many bushels have they?

5. How many quarts are there in 2 pk. of peas?

6. How many quarts are there in $\frac{1}{4}$ pk.? in $\frac{1}{8}$ pk.?

7. Tom fed the cows $\frac{1}{2}$ bu. of corn. How many pecks did he feed them?

1. Mrs. Cole bought 1 doz. eggs. Each of the 8 people in her family had an egg for breakfast. How many eggs were left?

2. A bus ride costs 8¢. How many cents will Jane have left from a quarter after she has had 3 bus rides?

3. Maud had 20 in. of silk. She made 2 dolls' dresses. Each dress took 8 in. How many inches of silk were left?

These subtraction examples will help you in dividing by 8. Read, and give the answers rapidly:

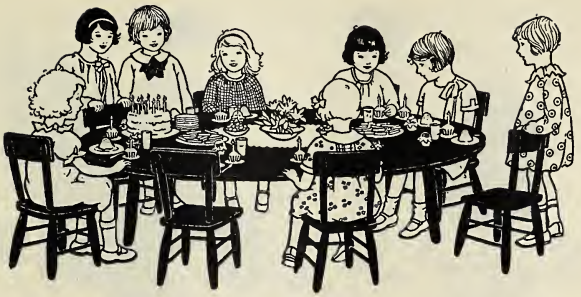
4. 23 – 16.
5. 45 – 40.
6. 75 – 72.
7. 71 – 64.
8. 46 – 40.
9. 67 – 64.
10. 78 – 72.
11. 66 – 64.
12. 36 – 32.
13. 47 – 40.
14. 38 – 32.
15. 80 – 72.
16. 20 – 16.
17. 31 – 24.
18. 15 – 8.
19. 54 – 48.
20. 22 – 16.
21. 13 – 8.
22. 68 – 64.
23. 37 – 32.
24. 70 – 64.
25. 76 – 72.
26. 63 – 56.
27. 39 – 32.
28. 14 – 8.
29. 21 – 16.
30. 74 – 72.
31. 65 – 64.
32. 79 – 72.
33. 69 – 64.
34. 55 – 48.
35. 12 – 8.
36. 77 – 72.

State the quotients and any remainders:

1. 8)13	8)57	8)20	8)14	8)19
2. 8)27	8)60	8)43	8)36	8)44
3. 8)72	8)33	8)18	8)29	8)17
4. 8)22	8)26	8)55	8)39	8)62
5. 8)50	8)75	8)28	8)53	8)78
6. 8)34	8)59	8)63	8)51	8)21
7. 8)68	8)23	8)46	8)52	8)45
8. 8)61	8)35	8)15	8)73	8)49
9. 8)31	8)79	8)41	8)67	8)25
10. 8)42	8)37	8)70	8)58	8)69
11. 8)54	8)30	8)74	8)65	8)47
12. 8)66	8)71	8)76	8)38	8)77

Divide, and then check by multiplying:

13. 8)152	14. 8)216	15. 8)144	16. 8)$9.52
17. 8)256	18. 8)200	19. 8)608	20. 8)$9.36
21. 8)392	22. 8)584	23. 8)472	24. 8)$16.08
25. 8)960	26. 8)736	27. 8)536	28. 8)$12.80



1. There are 8 girls at Amy's party. They have 32 sandwiches. How many may each girl have?

2. Amy has 56 pieces of pink candy. How many pieces are there for each of the 8 girls?

3. There are 24 white candy mints. How many mints may each of the 8 girls have?

4. Amy's mother made 16 glasses of lemonade. How many glasses did she make for each of the 8 girls?

5. There are 8 dishes of ice cream. How many dishes did they plan for each of the 8 girls to have?

6. There is 1 candle on each of the 8 little cakes. How many candles are there?

7. They put 72 nuts in 8 little nut cups. How many nuts were there in each cup?

8. Amy is 8 years old. Her mother is 4 times as old. How old is Amy's mother?

1. Mrs. Black bought 2 dresses for Edna, because she could get them both for $11.00 at a sale. How much did she pay for each dress?

2. If she had bought only 1 dress, she would have had to pay $7.00 for it. How much did she save on each dress?

3. Rob's coat cost $12.25, his cap cost $1.29, his shoes cost $3.50, and his tie cost 45¢. How much did they all cost?

4. Mrs. Black paid 90¢ for $\frac{1}{2}$ doz. handkerchiefs for Edna. What did each handkerchief cost?

5. She bought Rob 8 new handkerchiefs at 18¢ apiece. How much did they all cost?

6. She bought 3 pairs of shoes, all at the same price, and paid $14.25. What did each pair cost?

1. Write nine 9's in a column. Find the sum. How many are 9×9?

Give the answers rapidly:

2. Four 9's = ?	8. $9 \times 6 = ?$	14. $2 \times 9 = ?$
3. Seven 9's = ?	9. $5 \times 9 = ?$	15. $9 \times 7 = ?$
4. Nine 4's = ?	10. $9 \times 3 = ?$	16. $9 \times 8 = ?$
5. Eight 9's = ?	11. $8 \times 9 = ?$	17. $0 \times 9 = ?$
6. Nine 6's = ?	12. $7 \times 9 = ?$	18. $9 \times 5 = ?$
7. Three 9's = ?	13. $9 \times 9 = ?$	19. $6 \times 9 = ?$

20. Be sure that you know all of this table of 9's:

$1 \times 9 = 9$	$4 \times 9 = 36$	$7 \times 9 = 63$
$2 \times 9 = 18$	$5 \times 9 = 45$	$8 \times 9 = 72$
$3 \times 9 = 27$	$6 \times 9 = 54$	$9 \times 9 = 81$

21. Our school has 2 baseball teams of 9 boys each. How many boys are there on both teams?

22. At 9¢ each, how much will 9 pencils cost?

At 9¢ each, find the cost of

23. 5 pans.	26. 2 forks.	29. 6 knives.
24. 9 cups.	27. 8 glasses.	30. 7 spoons.
25. 4 plates.	28. 3 kettles.	31. 9 saucers.

These examples help to make carrying easy in multiplication. Multiply and add:

1. $9 \times 1 + 8$.	7. $9 \times 3 + 8$.	13. $9 \times 9 + 6$.
2. $9 \times 9 + 4$.	8. $9 \times 9 + 3$.	14. $9 \times 4 + 8$.
3. $9 \times 8 + 6$.	9. $9 \times 5 + 8$.	15. $9 \times 9 + 7$.
4. $9 \times 9 + 2$.	10. $9 \times 9 + 5$.	16. $9 \times 2 + 8$.
5. $9 \times 6 + 8$.	11. $9 \times 7 + 8$.	17. $9 \times 8 + 8$.
6. $9 \times 0 + 8$.	12. $9 \times 9 + 1$.	18. $9 \times 7 + 3$.

Find the products:

19. 101 × 9	20. 908 × 8	21. 897 × 7	22. 934 × 5	23. \$5.89 × 6
24. 879 × 4	25. 970 × 9	26. 989 × 8	27. 689 × 5	28. \$6.98 × 7
29. 396 × 6	30. 947 × 7	31. 789 × 6	32. 463 × 9	33. \$8.65 × 9
34. 964 × 8	35. 896 × 7	36. 295 × 9	37. 768 × 5	38. \$3.75 × 8
39. 897 × 3	40. 739 × 7	41. 978 × 2	42. 879 × 9	43. \$6.70 × 8

THE third-grade baseball team is called "The Midgets." The arithmetic class is finding how much it costs to buy things for the team.

Find the cost of these things:

1. 9 caps at 50¢ each.
2. 3 balls at $1.00 each.
3. 9 gloves at $1.29 each.
4. 9 baseball suits at $3.98 each.
5. 2 bats at $1.00 each and 1 bat at $1.25.
6. A catcher's mitt at $1.25 and a mask at $1.75.
7. The captain bought a bat bag at a sale and paid $3.98 instead of $5.00. How much did he save?
8. During the season they had to buy 36 car tickets at 9¢ each. How much did the tickets cost?

PETER works in a grocery store on Saturday afternoons. Jane buys 1 doz. cookies for 17¢ and gives Peter a quarter.

Peter subtracts 17¢ from 25¢ by counting out the change. He first thinks **17¢**; he then picks up 3 pennies and thinks **20¢**; he then picks up 1 nickel and thinks **25¢**. As he gives Jane the money he counts it, saying **"17, 18, 19, 20, 25."**

Hal buys 1 lb. of sugar for 8¢ and gives Peter a half dollar. Peter picks up 2 pennies, 1 nickel, 1 dime, and 1 quarter. As he gives Hal the money he counts it, saying **"8, 9, 10, 15, 25, 50."**

Ned bought things that cost 65¢ and gave Peter $1.00. What two coins did Peter use for the change?

Make change from 25¢ for something that costs

1.	12¢	14¢	15¢	16¢	18¢	21¢	8¢
2.	17¢	11¢	13¢	22¢	19¢	20¢	3¢

Make change from 50¢ for something that costs

3.	15¢	25¢	30¢	35¢	40¢	20¢	10¢
4.	18¢	41¢	28¢	17¢	32¢	27¢	39¢

Make change from $1.00 for something that costs

5.	23¢	15¢	35¢	60¢	9¢	42¢	85¢
6.	12¢	37¢	72¢	93¢	7¢	68¢	46¢

7. Roy bought a dozen oranges for 58¢ and gave Peter $1.00. Peter gave him back 2 pennies, 1 nickel, 1 dime, and 1 quarter. Count this change as Peter did.

8. Mr. Jay paid 7¢ for a Sunday paper and gave the newsboy $1.00. The boy gave him 3 pennies, 1 nickel, 1 dime, 1 quarter, and 1 half dollar. Was the change right? How would you count the change?

9. Alice bought a pair of roller skates for $1.35. The clerk took her 5-dollar bill and gave her 1 nickel, 1 dime, 1 half dollar, and 3 one-dollar bills in change. Count the change as the clerk did.

Make change from $2.00 for something that costs

10. $1.75. **11.** $1.90. **12.** $1.50. **13.** $1.25.

Make change from $5.00 for something that costs

14. $4.75. **15.** $4.50. **16.** $3.25. **17.** $2.50.

Name the coins that you would give in change in these cases, using as few coins as possible:

18. 19¢ from 50¢.

19. 33¢ from $1.

20. 44¢ from $1.

21. 3¢ from a dime.

22. 9¢ from a quarter.

23. 27¢ from a half dollar.

24. Hal wants 50¢ changed into dimes and nickels. In what two ways can you do this? Think of other ways to do it.

Give the missing numbers:

1. $9 \times 8 = ?$
2. $6 \times 9 = ?$
3. $9 \times 3 = ?$
4. $7 \times 9 = ?$
5. $9 \times 2 = ?$
6. $4 \times 9 = ?$
7. $9 \times 9 = ?$
8. $5 \times 9 = ?$
9. $9 \times \text{——} = 63.$
10. $\text{——} \times 9 = 81.$
11. $9 \times \text{——} = 36.$
12. $9 \times \text{——} = 72.$
13. $\text{——} \times 9 = 18.$
14. $9 \times \text{——} = 45.$
15. $\text{——} \times 9 = 27.$
16. $\text{——} \times 9 = 54.$
17. $54 = \text{——}$ 9's.
18. $72 = \text{——}$ 9's.
19. $18 = \text{——}$ 9's.
20. $36 = \text{——}$ 9's.
21. $45 = \text{——}$ 9's.
22. $81 = \text{——}$ 9's.
23. $27 = \text{——}$ 9's.
24. $63 = \text{——}$ 9's.

Give the answers rapidly:

25. $9 \div 9.$
26. $18 \div 9.$
27. $45 \div 9.$
28. $63 \div 9.$
29. $81 \div 9.$
30. $9\overline{)54}$
31. $9\overline{)27}$
32. $9\overline{)63}$
33. $9\overline{)18}$
34. $9\overline{)36}$
35. $0 \div 9.$
36. $36 \div 9.$
37. $72 \div 9.$
38. $27 \div 9.$
39. $54 \div 9.$
40. $9\overline{)72}$
41. $9\overline{)45}$
42. $9\overline{)9}$
43. $9\overline{)81}$
44. $9\overline{)63}$

"One ninth" is often written $\frac{1}{9}$.
To find $\frac{1}{9}$ of a number, divide by 9.

Give the answer in each of these cases:

45. $\frac{1}{9}$ of 9.
46. $\frac{1}{9}$ of 45.
47. $\frac{1}{9}$ of 72.
48. $\frac{1}{9}$ of 54.
49. $\frac{1}{9}$ of 18.
50. $\frac{1}{9}$ of 36.
51. $\frac{1}{9}$ of 81.
52. $\frac{1}{9}$ of 63.

1. At 9¢ each, how many boxes of fishhooks can Carl buy with 15¢? How much will be left?

2. How many 9-cent bus fares can Mary pay with a dime? How much will be left?

3. Aunt May bought 1 doz. candy bars. How many bars can each of 9 children have, and how many will be left?

4. Mrs. Mann bought 2 bars of soap at 9¢ each. How much was left from a quarter?

5. Roy's mother had 33 doughnuts. If 9 boys took 3 doughnuts apiece, how many were left?

These subtraction examples will help you in dividing by 9. Read, and give the answers rapidly:

6. 13 – 9.	15. 15 – 9.	24. 16 – 9.
7. 30 – 27.	16. 14 – 9.	25. 42 – 36.
8. 89 – 81.	17. 62 – 54.	26. 17 – 9.
9. 71 – 63.	18. 25 – 18.	27. 60 – 54.
10. 43 – 36.	19. 24 – 18.	28. 70 – 63.
11. 50 – 45.	20. 51 – 45.	29. 33 – 27.
12. 44 – 36.	21. 35 – 27.	30. 61 – 54.
13. 31 – 27.	22. 52 – 45.	31. 32 – 27.
14. 34 – 27.	23. 26 – 18.	32. 53 – 45.

1. There are 1 doz. apples in a bag. If 9 boys divide them equally, how many whole apples will each boy have? How many will be left?

2. Mrs. Park is dressing dolls. Each dress takes 9 in. of cloth. How many dresses can she make from 20 in., and how much will be left?

3. The Boy Scouts have 21 lb. of bacon. If they eat 9 lb. a week, how many full weeks will the bacon last, and how much will be left?

4. Mrs. White's cows give 25 qt. of milk a day. How many 9-quart pails will the milk fill, and how many quarts will be left?

Give the quotients and any remainders:

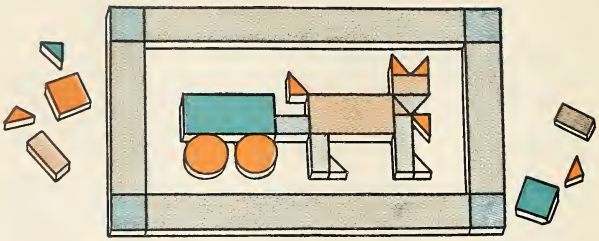
5. $9\overline{)25}$	13. $9\overline{)87}$	21. $9\overline{)71}$	29. $9\overline{)21}$
6. $9\overline{)33}$	14. $9\overline{)39}$	22. $9\overline{)19}$	30. $9\overline{)78}$
7. $9\overline{)50}$	15. $9\overline{)14}$	23. $9\overline{)35}$	31. $9\overline{)43}$
8. $9\overline{)41}$	16. $9\overline{)49}$	24. $9\overline{)15}$	32. $9\overline{)52}$
9. $9\overline{)30}$	17. $9\overline{)28}$	25. $9\overline{)26}$	33. $9\overline{)16}$
10. $9\overline{)48}$	18. $9\overline{)42}$	26. $9\overline{)17}$	34. $9\overline{)24}$
11. $9\overline{)34}$	19. $9\overline{)37}$	27. $9\overline{)69}$	35. $9\overline{)32}$
12. $9\overline{)55}$	20. $9\overline{)60}$	28. $9\overline{)22}$	36. $9\overline{)44}$

State the quotients and any remainders:

1. 9)61	9)20	9)31	9)23	9)10
2. 9)47	9)51	9)57	9)66	9)69
3. 9)59	9)67	9)62	9)84	9)13
4. 9)88	9)80	9)53	9)46	9)24
5. 9)73	9)29	9)89	9)70	9)50
6. 9)38	9)76	9)77	9)82	9)11
7. 9)64	9)58	9)40	9)75	9)78
8. 9)83	9)74	9)68	9)86	9)42
9. 9)56	9)65	9)85	9)79	9)12

Divide, and then check by multiplying:

10. 9)324	11. 9)531	12. 9)576	13. 9)$27.00
14. 9)828	15. 9)810	16. 9)774	17. 9)$18.90
18. 9)261	19. 9)882	20. 9)432	21. 9)$18.09
22. 9)783	23. 9)621	24. 9)837	25. 9)$19.53
26. 9)702	27. 9)711	28. 9)513	29. 9)$80.10
30. 9)684	31. 9)405	32. 9)747	33. 9)$28.89
34. 9)756	35. 9)441	36. 9)585	37. 9)$47.16



1. Ned made this picture with blocks. How many different shapes did he use to make the dog?

2. The dog's ears are triangles. How many sides has a triangle? How many corners has it?

3. The dog's body is a rectangle. How many rectangles and triangles did Ned use to make the dog?

4. How many circles are there in the picture?

5. The border has four rectangles and four squares. How is a square different from a rectangle? In what way are they the same?

Write the name of the shape of

6. This page.
7. Our flag.
8. A nickel.
9. A plate.
10. A blotter.
11. A door.
12. A watch.
13. A ruler.
14. A stamp.
15. A window.
16. A newspaper.
17. A napkin.
18. A dollar bill.
19. A quarter.
20. The blackboard.

Review Questions

1. How many minutes are there in 1 hr.?

2. Which is the larger, $\frac{1}{2}$ gal. or 3 qt.?

3. How many sides has a triangle?

4. How do you check the answer in subtraction?

5. How many pecks will a bushel basket hold?

6. How many hours is it from 11 o'clock in the morning to 1 o'clock after lunch?

7. Which is heavier, a book that weighs 1 lb. or a book that weighs 15 oz.? How much heavier is it?

8. Which months have 30 da.?

9. What is the name of the answer in multiplication? in subtraction? in division? in addition?

10. What does "find the difference" mean?

11. How many yards are there in 6 ft.?

12. How many quarts will a gallon pail hold?

13. Tom has a quarter and a dime. To how many cents are these equal?

14. Which month of the year is the shortest?

15. How many glassfuls of milk are there in 3 pt.?

16. How do you check your work in addition?

17. By what do you divide to find $\frac{1}{6}$ of a number?

18. If you add four 0's together, what is the sum?

Add, and then check your work:

1. 558	2. 868	3. 770	4. 778	5. 273
845	286	953	459	643
986	698	337	539	224
449	959	979	348	127

Subtract, and then check your work:

6. 845	7. 920	8. 763	9. 927	10. 826
349	384	275	579	457
11. 812	12. 924	13. 936	14. 645	15. 767
263	295	479	296	288

Multiply, and then check your work:

16. 879	17. 849	18. 987	19. 649	20. 986
6	7	3	8	9
21. 879	22. 567	23. 954	24. 908	25. 857
4	7	9	5	8

Divide, and then check your work:

26. 2)900	27. 3)252	28. 6)390	29. 8)256
30. 7)840	31. 5)335	32. 4)224	33. 9)288
34. 6)744	35. 7)546	36. 8)600	37. 9)621

I am ready to be promoted, because I can

1. Read and write numbers to 10,000.
2. Make simple number problems.
3. Give the 100 addition facts.
4. Give the 100 subtraction facts.
5. Add rapidly when endings are the same.
6. Give the 100 multiplication facts.
7. Give the 90 division facts.
8. Give the 360 division facts with remainders.
9. Name the months of the year and use a calendar.
10. Measure by yards, feet, and inches.
11. Find $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, and so on to $\frac{1}{9}$ of a number by dividing the number by 2, 3, 4, and so on to 9.
12. Tell time by a clock.
13. Read the Roman numerals to 20.
14. Do addition examples where there are 4 three-figure numbers to add.
15. Do three-figure subtraction examples in which there is borrowing.
16. Multiply three-figure numbers by one-figure numbers, with carrying.
17. Check my answers in addition, subtraction, multiplication, and division.

CHAPTER FIVE

INCREASING SKILLS IN SIMPLE OPERATIONS

I. READING AND WRITING NUMBERS

At the Circus

Read these statements which the children saw on the circus billboards:

1. This circus has 709 animals.
2. Jumbo, the elephant, weighs 5200 lb. (pounds).
3. The clowns will give away 1001 balloons.
4. Humpy, the camel, was born June 21, 1929.
5. It costs $816.75 a day to feed the animals.
6. For the best seats telephone Main 3704.

Read these numbers:

7. 2000.	13. $0.75.	19. $1026.00.
8. 1300.	14. $12.50.	20. $3208.13.
9. 6475.	15. $531.25.	21. $7500.75.
10. 8090.	16. $605.00.	22. $1250.50.
11. 9007.	17. $900.47.	23. $1001.10.
12. 9070.	18. $940.07.	24. $1100.01.

1. Count by 1000's from 1000 to 10,000.

2. The number 20,000 is read "twenty thousand." How do you read 30,000? 50,000? 80,000?

3. Count by 10,000's from 10,000 to 100,000.

Read these numbers:

4. 40,000.	6. 25,000.	8. 38,000.
5. 70,000.	7. 90,000.	9. 64,000.

Write these numbers in figures:

10. Six thousand.	12. Fifteen thousand.
11. Sixty thousand.	13. Forty-six thousand.

14. The number 35,497 is read "thirty-five thousand four hundred ninety-seven." Read 35,365.

15. The number 76,009 is read "seventy-six thousand nine." Read 42,018.

Read these numbers:

16. 46,127.	19. 47,216.	22. 61,003.
17. 50,050.	20. 20,200.	23. 90,014.
18. 61,120.	21. 75,108.	24. 23,002.

Write these numbers in words:

25. 14,000.	27. 72,940.	29. 90,009.
26. 45,300.	28. 18,018.	30. 36,502.

An Addition Test

See how quickly you can do these additions:

1.	5	0	8	6	7	6	9	2	4
	7	6	3	9	7	5	3	6	5
2.	8	9	4	5	4	6	2	5	0
	4	9	7	5	9	6	7	1	9
3.	6	2	6	9	6	8	7	8	6
	3	5	8	1	4	8	5	9	1
4.	8	4	3	9	5	7	2	5	7
	0	2	5	6	3	6	9	8	3
5.	5	6	3	5	4	3	8	4	9
	4	7	8	9	1	7	1	6	8
6.	7	4	9	8	9	8	9	6	3
	2	4	0	7	2	6	4	2	9
7.	0	2	9	4	2	5	7	8	3
	0	4	7	3	8	6	1	5	4
8.	3	5	4	7	8	9	7	3	7
	6	2	8	9	2	5	8	2	4

1. Tony is taking the oranges out of the box by 2's. It is quicker to count by 2's than by 1's. Count by 2's to 30.

2. Count by 2's to 31, beginning with 1, 3, 5.

3. Suppose that you are taking eggs from a basket by 3's. Count by 3's from 0 to 30.

4. Count by 3's to 31, beginning with 1, 4, 7, 10.

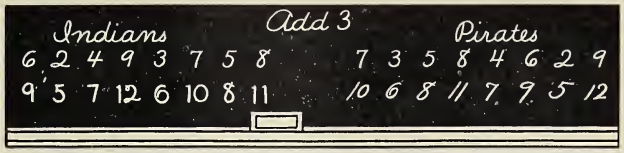
5. Count by 4's from 1 to 33; from 2 to 34.

6. Count by 5's from 1 to 36; from 3 to 38.

7. Count by 6's from 2 to 38; from 4 to 40.

Add:

8. 5 48	9. 7 36	10. 8 54	11. 9 35	12. 6 87	13. 8 69
14. 9 67	15. 6 49	16. 7 53	17. 8 38	18. 9 86	19. 4 29
20. 8 57	21. 5 39	22. 9 78	23. 5 47	24. 9 29	25. 8 39
26. 9 34	27. 6 68	28. 9 43	29. 7 28	30. 6 85	31. 7 54



THE class is divided into two teams, the "Indians" and the "Pirates." The teacher writes two rows of figures on the board.

When the teacher says "Add 3," one Indian and one Pirate write the numbers shown above. Getting all the answers right wins 5 points for the team. Finishing first wins 3 points more. The others on each team watch for mistakes and keep score.

After both have finished, the answers are erased. The teacher then gives another number to be added; for example, 7. Two other children, one from each team, try to write the answers.

Count as follows:

1. By 4's from 3 to 39.
2. By 5's from 2 to 37.
3. By 5's from 4 to 39.
4. By 6's from 1 to 37.
5. By 6's from 3 to 39.
6. By 6's from 5 to 41.
7. By 7's from 1 to 43.
8. By 7's from 3 to 45.
9. By 7's from 5 to 47.
10. By 8's from 2 to 42.
11. By 8's from 5 to 45.
12. By 9's from 2 to 47.

See how quickly you can do these additions:

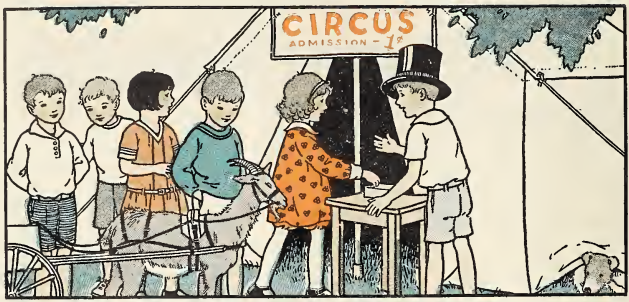
1.	6	7	3	8	7	2	5	6
	36	45	18	36	24	18	45	28
2.	7	6	5	4	7	5	8	5
	48	45	27	48	63	18	27	56
3.	3	7	2	6	4	3	6	2
	49	54	48	54	49	28	48	49
4.	16	35	18	27	28	36	45	36
	4	6	4	3	2	4	8	5
5.	56	18	49	14	28	36	18	24
	4	7	1	6	5	7	8	6
6.	63	49	72	56	48	16	28	27
	8	5	8	7	3	6	4	6
7.	18	64	56	16	35	64	27	16
	6	7	6	7	5	6	7	5
8.	42	89	62	50	75	45	20	43
	43	10	35	36	24	31	70	25
9.	20	63	43	75	35	30	62	53
	57	24	52	10	41	68	14	23

See how many minutes it takes you to find the sums, adding upward without copying, and checking by adding downward:

1.	2.	3.	4.	5.	6.	7.
2	6	4	3	7	6	3
6	4	6	8	6	7	7
4	5	7	9	8	3	6
5	8	5	2	5	4	5

8.	9.	10.	11.	12.	13.	14.
8	4	2	7	3	7	3
4	2	1	0	4	4	3
9	5	3	4	0	5	7
0	3	6	0	5	1	9
1	7	5	6	7	3	1
7	3	1	3	4	5	6

15.	16.	17.	18.	19.	20.	21.
1	6	1	4	2	3	4
9	4	6	0	6	0	1
1	1	0	5	0	2	2
2	0	1	1	1	4	8
3	5	5	3	3	0	0
4	1	1	4	4	6	7
5	2	3	2	2	1	3
0	9	5	8	8	2	1
2	1	2	0	0	3	5
3	2	1	1	2	7	0



1. Our play circus had 5 dogs, 3 cats, 6 white rats, 1 goat, and 4 rabbits. How many animals were there?

2. The dogs did 13 tricks, the goat did 2, and the cats did 3. How many tricks did this make?

3. The first show took 12 min. (minutes) and the next 9 min. How many minutes did both take?

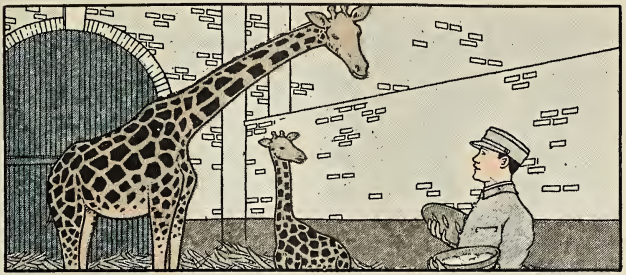
4. We spent 22¢ for rope and 9¢ for tent pegs. How much did we spend for both?

5. We paid 35¢ for lemons, 7¢ for sugar, and nothing for water. How much did the lemonade cost?

6. We made 14¢ in the morning and 26¢ in the afternoon. How much did we make in all?

7. At the first show there were 9 boys, 7 girls, and 4 mothers. How many people were there in all?

8. Hal took in 1 dime, 31 pennies, and 2 nickels. How much money did he take in?



1. Tiny, the baby elephant, ate 6 lb. of bread, 10 lb. of bananas, 3 lb. of oranges, 4 lb. of apples, and 2 lb. of dates. How many pounds did she eat in all?

2. The baby giraffe had his dinner in a bowl that held 3 pt. (pints) of corn meal, 5 pt. of milk, 1 pt. of bran, and 1 pt. of shelled corn, all cooked together. How many pints were there in the bowl?

3. Bobo, the monkey, did not want his dinner. Fred had given him 28 peanuts, Hal 37, and Sue 49. How many peanuts had Bobo had?

4. One of the big elephants had 175 lb. of hay, 16 lb. of bread, 18 lb. of lettuce, and 50 lb. of cornstalks. How many pounds did he have?

5. Pete, the hippopotamus, ate 150 lb. of hay, 15 lb. of bread, 12 lb. of cabbage, and 48 lb. of green corn. How much did he eat?

6. Make up two problems like these about animals.

Add, and then check each answer:

1. 31	2. 89	3. 79	4. 60	5. 39	6. 49
92	78	22	28	77	85
79	47	86	91	80	89
74	21	50	93	76	70
7. 99	8. 90	9. 60	10. 72	11. 47	12. 88
27	39	66	65	96	67
82	55	80	86	68	95
70	10	44	58	90	32
13. 20	14. 68	15. 31	16. 50	17. 25	18. 34
18	41	29	81	40	53
52	34	10	39	54	20
43	52	52	13	13	42
76	13	27	24	61	15
25	80	40	10	32	81
19. 75	20. 38	21. 61	22. 15	23. 11	24. 73
24	43	14	74	23	40
17	35	36	30	50	24
42	24	53	26	32	52
31	10	72	12	17	61
50	36	45	89	70	35
60	43	26	33	41	16

See if you can do all these kinds of additions:

1.	2.	3.	4.	5.
76	24	63	957	467
13	65	92	532	920
6.	7.	8.	9.	10.
19	27	34	164	595
6	5	97	78	609
11.	12.	13.	14.	15.
67	59	96	708	967
59	98	80	90	859
45	28	97	503	645

See how quickly you can add and check these:

16.	17.	18.	19.	20.
900	539	206	909	629
426	421	170	586	598
952	262	807	831	65
375	380	582	770	872
263	790	963	657	340

Copy, and find the sums as quickly as you can:

21.	22.	23.	24.
$5.75	$7.23	$9.07	$8.69
4.63	.45	8.86	5.06
.41	8.97	5.65	7.44
9.18	5.62	6.90	.39
1.09	1.86	2.79	7.69

1. Joe went to the camp at Long Lake. The boys caught 68 fish the first week, 102 the second, and 79 the third. How many did they catch in all?

2. Joe spent $1.28 for bus fare, $1.15 for fishing tackle, $6.00 for a tennis racket, and $3.80 for other expenses. How much did he spend in all?

3. Roy's family took a motor trip. Here is the number of miles they drove each day: 158, 207, 162, 210. How many miles did they drive in all?

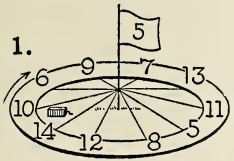
4. Ned made a model airplane. He paid $1.25 for the frame, $1.10 for a propeller, and $3.80 for the other parts. How much did the airplane cost?

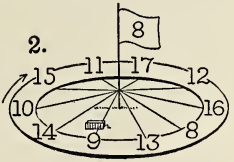
5. Ida went to Sandy Beach. She paid $1.57 for railroad fare, $3.00 for shoes, and $2.98 for a bathing suit. How much did she pay in all?

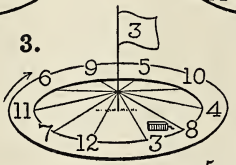
6. Make up three problems about your vacation.

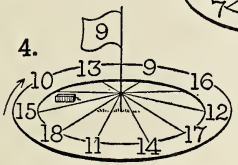
Subtraction Merry-Go-Rounds

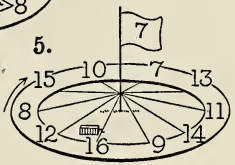
In each case subtract the number on the flag from each of the other numbers. Start at the music box and see how fast you can go round:

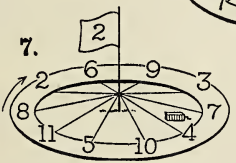


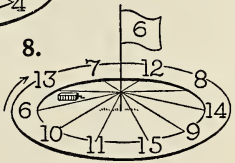












See how quickly you can do these subtractions:

1.	28	48	12	32	15	20	49	37	21
	5	5	6	6	8	4	3	2	7
2.	16	26	39	18	41	24	57	32	79
	8	8	2	9	5	6	3	8	5
3.	85	13	43	60	17	39	23	78	24
	2	7	7	5	8	9	6	3	7
4.	58	21	47	14	68	30	13	22	31
	4	6	7	5	1	6	8	3	4
5.	20	15	23	98	22	74	21	32	50
	2	7	4	2	7	4	3	4	9
6.	14	23	61	13	78	26	42	99	35
	9	5	7	9	8	9	5	4	8
7.	49	16	22	70	31	15	68	41	22
	9	7	9	4	8	6	8	9	4
8.	99	20	85	14	69	32	81	25	34
	1	7	5	8	5	7	1	8	9
9.	56	74	80	35	67	23	61	40	13
	6	3	1	9	4	7	2	3	5

See if you can do all these kinds of subtractions:

1.	12	15	14	17	16	13	14	13
	5	7	5	8	9	4	8	6
2.	79	99	79	89	56	197	697	348
	43	15	27	16	42	15	53	31
3.	53	94	31	47	90	123	191	130
	7	8	6	8	2	7	3	3
4.	64	81	96	84	63	152	183	147
	39	45	59	17	26	81	90	55
5.	63	71	84	40	66	183	125	109
	17	64	26	15	57	99	87	29

Subtract, and then check your work by addition:

6.	82	45	90	73	98	174	123	175
	36	37	34	46	59	85	74	96
7.	63	94	62	46	84	663	881	853
	27	46	38	37	59	78	96	89
8.	54	72	63	75	82	856	945	707
	38	67	55	29	65	379	268	129

1. Roy found 25 balls on the golf links this season. He sold 19 of them. How many balls were left?

2. Mr. Hart bought a ball for 25¢ and gave Roy a dollar. How much change should Roy give back?

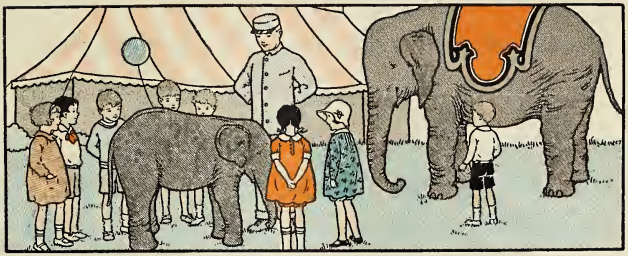
3. There were 30 men and 8 boys on the links. How many more men than boys were there?

4. Dick wants 49¢ to buy a collar for his dog. He earned 35¢ yesterday carrying golf clubs. How much more does he need?

5. Roy worked 90 da. (days) on the links and Dick, 72 da. Roy worked how many more days than Dick?

6. Mr. Brown paid 60¢ for a new ball. It cost how much more than an old ball at 25¢?

7. The flagpole is 56 ft. (feet) high and the clubhouse is 39 ft. high. How much higher is the flagpole than the clubhouse?



GUESS how much Tiny, the baby elephant, weighs. If you guess within 10 lb., you can ride on Bingo, the big elephant. If you guess within 15 lb., you can see the animals free. If you guess within 20 lb., you can see the animals for half price.

Here are the guesses some of the children made:

Hal, 790	Ann, 294	Ella, 198	Dan, 449
Joe, 361	Eva, 683	Ned, 461	Kate, 536
Ida, 470	Ada, 520	Sue, 500	Paul, 475

1. Tiny really weighs 457 lb. Find the difference between this weight and each guess.
2. Which children can ride on Bingo?
3. Who can see the animals free?
4. Who will pay only half price to see the animals?
5. Which children guessed too much? too little?
6. Who made the best guess? the poorest?

See how quickly you can do these subtractions:

1. 790	2. 954	3. 265	4. 1301	5. 1847
572	220	108	217	919
6. 463	7. 505	8. 584	9. 6305	10. 3712
249	107	105	2969	1908
11. 683	12. 920	13. 711	14. 9500	15. 5801
97	379	452	2871	2943

See if you can do these subtractions and check your work in less than 5 min.:

16. 442	17. 975	18. 627	19. 7013	20. 7174
363	686	358	4165	5386
21. 814	22. 856	23. 723	24. 6145	25. 8378
379	687	348	5267	7679

Copy and subtract, remembering the dollar sign and the decimal point:

26. $5.73	27. $8.16	28. $9.72	29. $5.41
3.64	4.09	5.94	4.89
30. $8.60	31. $9.12	32. $8.27	33. $6.82
4.64	3.05	5.48	3.97

Easy Multiplications

See how quickly you can multiply these:

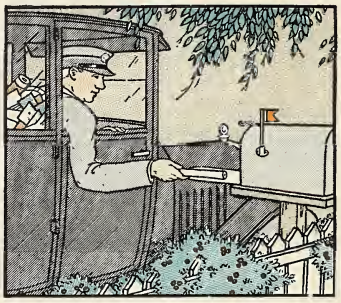
1.	5	6	9	7	2	8	6	7	3
	9	5	4	7	5	4	9	5	9
2.	7	5	4	5	6	5	9	4	9
	8	5	7	8	6	4	6	8	7
3.	4	8	9	4	7	8	5	6	3
	9	7	3	6	9	8	3	8	4
4.	3	6	8	2	3	6	4	7	3
	7	4	5	7	8	7	5	6	5
5.	8	5	9	8	5	3	9	6	7
	9	6	9	6	7	6	8	2	4

See if you can multiply these easily:

6.	30	21	50	61	70	21	81	62	50
	8	6	4	7	6	9	8	3	7
7.	84	93	70	53	92	71	91	80	61
	2	3	9	3	4	3	8	7	9
8.	70	90	81	90	71	90	71	80	91
	8	5	4	6	6	9	7	6	7

1. On our route the postman has to drive 58 miles each day. How many miles does he drive in 6 da.?

2. One week he delivered 89 papers each day. How many papers did he deliver in 6 da.?



3. He can drive his car 13 miles on 1 gal. (gallon) of gasoline. How many miles can he drive it on 9 gal.?

4. The postman makes 97 stops on each trip. How many stops will he make in 5 trips?

5. Make up an easy multiplication problem about your postman and find the answer.

Multiply, and then check your work by going over it a second time:

6. 36 × 5	7. 79 × 2	8. 52 × 8	9. 37 × 4	10. 57 × 6	11. 54 × 9
12. 46 × 8	13. 26 × 7	14. 73 × 9	15. 54 × 5	16. 43 × 6	17. 47 × 4
18. 87 × 5	19. 64 × 7	20. 49 × 6	21. 97 × 9	22. 59 × 8	23. 97 × 3

WE NEED a big square like this drawn on the board. The class is divided into two teams, the "Reds" and the "Blues." The captain of the Reds points to the small squares, and one of the Blues gives the answers as fast as he can.

When his turn comes, the captain of the Blues takes the pointer, and one of the Reds gives the answers.

1	2	3	4	5	6	7	8	9	0
2									
3				*a*					
4									
5									
6								*c*	
7									
8						*b*			
9									
0									

The square marked *a* has 3 at the left and 5 at the top. The answer is 15 because $3 \times 5 = 15$. At *b* the answer is 56 because $8 \times 7 = 56$.

The pupil who can give 20 correct answers in $\frac{1}{2}$ min. wins 5 points for his team. Keep the scores and see which team wins at the end of a month.

---

1. What number belongs in the square marked *c*?

2. What number belongs in the last square in row 9? in the third square in column 7?

3. Draw the large square on paper and practice writing the answers in the small squares.

4. In how many squares shall you write 0?

1. Mr. King, the janitor, cleans 147 erasers each day. How many does he clean in 5 da.?

2. He dusts 296 desks each day. How many desks does he dust in 3 da.?

3. The drawing teacher counted the crayons. There were 108 boxes with 8 crayons in each box. How many crayons were there in all?

4. Lucy picked up the books. There were 2 cupboards with 187 books in each one. How many books were there in both?

5. With the pencil sharpener, Jack can sharpen 129 pencils in 1 hr. (hour). How many pencils can he sharpen in 7 hr.?

6. Make up two problems about your school.

See how quickly you can multiply these:

7. 849 × 3	8. 527 × 6	9. 218 × 9	10. 387 × 4	11. $9.46 × 7
12. 573 × 8	13. 963 × 9	14. 948 × 6	15. 756 × 3	16. $8.49 × 8
17. 837 × 7	18. 407 × 9	19. 869 × 5	20. 798 × 2	21. $6.12 × 8

See how quickly you can multiply these:

1. 0	8	7	6	3	9	8	4	6
7	9	7	8	7	6	3	9	6
2. 8	7	6	8	3	5	9	8	6
6	4	0	7	9	8	7	0	9
3. 7	9	8	6	5	9	8	7	3
8	9	4	7	0	4	8	9	8
4. 0	9	4	9	7	0	4	5	6
8	3	7	8	6	9	8	9	3

See if you can do all these multiplications:

5. 51	6. 93	7. 81	8. 41	9. 61
3	2	5	9	7
10. 75	11. 98	12. 67	13. 39	14. 94
6	9	8	7	5
15. 400	16. 420	17. 670	18. 250	19. 840
9	3	9	8	6
20. 205	21. 109	22. 308	23. 708	24. 807
4	8	2	5	7

1. The big boys on Hill Street had a model airplane meet. Each boy made his own airplane. The wood for an airplane costs $1.05. How much does the wood for 9 airplanes cost?

2. Roy paid 13¢ for a sheet of bamboo paper. How much do 7 sheets cost?

3. At 29¢ a can, how much did the boys pay for 3 cans of varnish?

4. A propeller costs $1.15. How much do 6 propellers cost?

5. There were 86 parts in Dick's airplane. How many parts are there in 9 airplanes like Dick's?

6. Paul's airplane cost him $2.97 to make. Lee paid 3 times as much for one that he bought at the store. How much did Lee pay?

7. Make up another problem about an airplane.

Easy Divisions

Give the answers quickly:

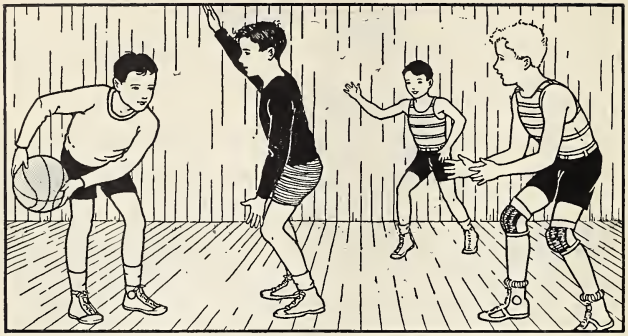
1. How many 2's in 4? in 10? in 14? in 18?
2. How many 3's in 15? in 9? in 18? in 24?
3. How many 4's in 12? in 20? in 24? in 16?
4. How many 5's in 25? in 40? in 15? in 35?
5. How many 6's in 18? in 30? in 42? in 54?
6. How many 7's in 49? in 21? in 56? in 28?
7. How many 8's in 48? in 32? in 64? in 56?
8. How many 9's in 81? in 27? in 72? in 54?

Do these divisions:

9. $36 \div 4$.	12. $72 \div 8$.	15. $40 \div 8$.
10. $48 \div 6$.	13. $56 \div 8$.	16. $63 \div 9$.
11. $21 \div 3$.	14. $28 \div 4$.	17. $24 \div 8$.

Divide, and then check by multiplying:

18. $6\overline{)54}$	$9\overline{)36}$	$3\overline{)12}$	$7\overline{)42}$	$9\overline{)63}$	$6\overline{)42}$
19. $2\overline{)16}$	$7\overline{)35}$	$6\overline{)36}$	$8\overline{)24}$	$9\overline{)72}$	$7\overline{)56}$
20. $7\overline{)63}$	$6\overline{)24}$	$9\overline{)45}$	$7\overline{)49}$	$6\overline{)48}$	$8\overline{)40}$
21. $4\overline{)32}$	$8\overline{)56}$	$4\overline{)36}$	$9\overline{)54}$	$8\overline{)64}$	$8\overline{)72}$



1. Jerry sold his father 2 tickets to the game for 80¢. How much did each ticket cost?

2. The manager of the team paid $12 for 2 new basket balls. How much did each ball cost?

3. When the team went to the next town to play the Hale School, the car fare for 7 players cost 84¢. How much was the fare for each player?

4. The school gave each of the 5 regular players a small gold basket ball for a watch charm. If the 5 watch charms cost $10, how much did each cost?

5. When they bought new basket-ball shoes for the team, the 5 pairs cost $15. How much did each pair of shoes cost?

6. They bought 4 new basket-ball suits for $28. How much did each suit cost?

IN SOLVING this problem you will have to carry when you divide: "Nell, Sue, and Amy have saved 138 pennies since last May. If they divide them equally, how many pennies will each of the 3 girls have?"

$13 \div 3 = 4$, and 1 over. Write 4 under the 3 in 13.

3)138
46

Think of 1 before the 8 in 138; it makes 18 to be divided by 3.

$18 \div 3 = 6$. Write 6 under the 8.

The answer is 46. Each girl will have 46 pennies.

Divide, and then check by multiplying:

1. 2)154	2. 3)252	3. 2)128	4. 4)172
5. 3)285	6. 5)195	7. 2)178	8. 3)225
9. 5)375	10. 2)196	11. 8)192	12. 4)268
13. 8)144	14. 6)276	15. 7)378	16. 6)258
17. 8)184	18. 9)387	19. 7)476	20. 9)585
21. 4)384	22. 6)468	23. 3)228	24. 7)238
25. 9)855	26. 4)296	27. 7)679	28. 8)736
29. 6)168	30. 9)333	31. 3)168	32. 4)340
33. 8)664	34. 5)460	35. 7)434	36. 8)768
37. 9)846	38. 7)595	39. 6)582	40. 9)774

See how quickly you can do these divisions:

1. 6)54	5)30	9)72	5)25	3)18	7)49
2. 2)14	6)42	5)20	8)64	9)81	8)72
3. 5)40	7)56	6)48	7)42	4)28	1)1
4. 9)54	3)15	7)63	9)0	9)63	7)21
5. 7)28	9)45	2)20	9)36	3)90	4)44
6. 2)24	6)36	8)40	5)45	3)33	2)0
7. 5)35	6)60	8)88	3)30	8)48	8)56

See if you can do all these easily:

8. 2)84	9. 3)96	10. 4)80	11. 3)$0.60
12. 3)219	13. 8)488	14. 7)217	15. 9)$2.79
16. 6)360	17. 3)150	18. 4)320	19. 8)$4.00
20. 4)440	21. 2)408	22. 3)369	23. 5)$5.50
24. 5)540	25. 7)749	26. 8)856	27. 7)$7.63
28. 9)477	29. 5)165	30. 6)582	31. 9)$8.82
32. 6)258	33. 7)245	34. 9)378	35. 8)$6.56
36. 2)182	37. 4)368	38. 2)120	39. 2)$6.20
40. 9)972	41. 8)784	42. 5)225	43. 7)$5.81
44. 8)296	45. 9)567	46. 8)592	47. 6)$5.94

Larger Numbers in Addition

1. Mr. Case is a traveling salesman. He drove his car 3849 miles in May and 4028 miles in June. How far did he drive it in all?

2. Mr. White paid $1750 for a closed car and $1095 for an open car. How much did he pay for both?

3. The Bangs family took a long trip. They went 3379 miles on a steamer and 2106 miles on a train. How many miles did they travel in all?

4. A farmer had a load of oats that weighed 3198 lb. and a load of corn that weighed 4361 lb. How much did both loads weigh?

5. There are 1258 pupils in the Central School and 1035 in the McKinley School. How many pupils are there in both schools?

6. Mr. King sold three loads of wheat. The first weighed 4370 lb., the second 3918 lb., and the third 4107 lb. How many pounds did they all weigh?

7. This is Fair Week in our town. On Monday they sold 6375 tickets, on Tuesday 6108, on Wednesday 6450, and on Thursday 6025. How many tickets did this make in all?

8. The four sides of a city park measure 1089 ft., 901 ft., 1172 ft., and 893 ft. When Bob walked round the park, how many feet did he walk?

See how well you can do these additions:

1.	2.	3.	4.
9888	9882	7539	$874.75
4869	5664	6968	649.68
6745	8393	1793	315.09
5.	**6.**	**7.**	**8.**
1027	6380	3528	$614.75
9952	757	1074	976.89
8569	7598	8878	495.46
1909	4025	3439	220.84
9.	**10.**	**11.**	**12.**
5073	3012	7491	$929.58
1634	1563	329	756.69
8148	6347	5850	639.45
6568	5729	707	105.47
13.	**14.**	**15.**	**16.**
2359	2726	9497	$468.62
5230	9410	345	791.27
9907	889	8836	460.98
4678	2159	6518	76.52
17.	**18.**	**19.**	**20.**
9620	5669	9343	$348.78
429	4325	839	871.60
2053	2730	2093	474.86
7736	5059	3938	756.08
2349	2318	5525	137.07

DURING a recent five-year period, campers started 20,240 forest fires in the United States, and lightning started 15,634. How many more forest fires were caused by campers than by lightning?

Minuend →	20240	Number subtracted from
Subtrahend →	15634	Number subtracted
Difference →	4606	Also called "remainder"

Campers caused 4606 more fires than lightning.

CHECK. Add 4606 to 15,634, adding upward. The sum should be 20,240, the number subtracted from.

First state the minuend and the subtrahend in each of these problems; then find the difference and check:

1. Last summer Harry earned $126.50 and Carl $93.75. How much more did Harry earn than Carl?

2. Mr. Rice wants a car that costs $1500. If he buys a used car for $1175, how much less is this?

3. There are 1174 sticks of gum in a big bowl in the drug-store window. Any girl who guesses within 50 of the number gets a bottle of perfume. In these guesses, which of the girls will get a bottle of perfume?

Nell, 1200	Ann, 1086	Ida, 1158
Cora, 989	Ruth, 1169	Nina, 1209

Subtract, and then check your work:

1. 60,831 34,253	2. 58,463 23,579	3. 82,432 70,496	4. 91,487 64,349
5. 65,427 18,840	6. 80,100 43,125	7. 89,731 52,789	8. 72,308 28,760
9. 98,519 48,969	10. 90,000 35,462	11. 73,576 16,098	12. 87,111 10,982
13. 85,640 67,950	14. 63,021 43,757	15. 56,400 25,783	16. 79,560 39,687
17. 80,165 25,898	18. 72,381 36,897	19. 93,435 35,497	20. 51,110 13,697

Subtract these money numbers:

21. \$77.02 2.06	22. \$48.68 2.98	23. \$78.96 71.57	24. \$80.63 32.69
25. \$92.47 14.68	26. \$84.21 65.23	27. \$90.52 68.63	28. \$61.53 34.97
29. \$71.00 42.45	30. \$92.56 18.78	31. \$80.15 53.92	32. \$90.03 77.64

10 in Multiplication

1. Count by 10's to 100.

2. Be sure that you know all of this table of 10's:

$1 \times 10 = 10$	$5 \times 10 = 50$	$9 \times 10 = 90$
$2 \times 10 = 20$	$6 \times 10 = 60$	$10 \times 10 = 100$
$3 \times 10 = 30$	$7 \times 10 = 70$	$11 \times 10 = 110$
$4 \times 10 = 40$	$8 \times 10 = 80$	$12 \times 10 = 120$

Give the answers:

3. $10 \times 1 = ?$	6. $10 \times 3 = ?$	9. $10 \times 8 = ?$
4. $10 \times 6 = ?$	7. $10 \times 9 = ?$	10. $10 \times 5 = ?$
5. $10 \times 4 = ?$	8. $10 \times 2 = ?$	11. $10 \times 7 = ?$

To multiply any number by 10, write a zero after the number.

12. Multiply each of these numbers by 10: 9, 5, 7, 12, 15, 18, 10, 17, 20.

Find the cost of these things:

13. 10 balls at 5¢.
14. 10 cups at 8¢.
15. 10 pans at 9¢.
16. 10 rulers at 7¢.
17. 10 erasers at 3¢.
18. 10 oranges at 6¢.

1. How many dimes are there in 50¢? in 80¢?

2. How many 10's are there in 20? in 40? in 70?

Give the missing numbers or the answers:

3. 30 = —— 10's.	8. 30 ÷ 10.	13. 10)70
4. 90 = —— 10's.	9. 90 ÷ 10.	14. 10)50
5. 60 = —— 10's.	10. 60 ÷ 10.	15. 10)10
6. 80 = —— 10's.	11. 80 ÷ 10.	16. 10)40
7. 100 = —— 10's.	12. 100 ÷ 10.	17. 10)20

Dropping the zero from the right of a number ending in zero divides the number by 10.

Divide each of these numbers by 10:

18. 60	20	70	100	170	230	720
19. 40	90	30	180	200	350	960
20. 80	50	10	160	240	490	580

21. If 10 desks cost $80, what is the cost of 1 desk?

22. When goldfish are 10¢ each, how many goldfish can you get for 60¢?

23. Nancy spent 90¢ for Chinese lily bulbs. At 10¢ each, how many bulbs did she get?

24. Peter has 40¢ to spend at the 10-cent store. How many 10-cent articles can he buy?

WE HAVE learned that to multiply any number by 10 we need only write a zero after the number; that is, $10 \times 2 = 20$, $10 \times 15 = 150$, and so on. We say that we **annex a zero** in such cases.

To multiply any number by 10, annex a zero.

Since $100 = 10 \times 10$, we also have this rule:

To multiply any number by 100, annex two zeros.

Multiply by 10 by annexing a zero:

1.	6	13	27	63	90	125	196	100
2.	9	15	38	76	89	240	138	300

Multiply by 100 by annexing two zeros:

3.	15	29	38	45	62	89	132	100
4.	11	24	47	68	73	92	250	300

Multiply in each of these cases:

5. 400	6. 300	7. 400	8. 300	9. 500
2	3	4	6	3

Multiply by annexing zeros:

10. 100×7.	13. 100×18.	16. 100×42.
11. 9×100.	14. 16×100.	17. 99×100.
12. 100×35.	15. 100×13.	18. 100×57.

MULTIPLYING by 20 is the same as multiplying by 2×10. We can multiply by 2 and then annex a zero to the answer.

Write the numbers, as here shown, so that the zero stands out at the right. Multiply by the 2, **and then annex a zero.**

31	125
20	300
620	37500

Multiplying a number by 300 is the same as multiplying by 3×100. In this case we can multiply by 3 **and then annex two zeros.**

Multiply, and then check by going over your work:

1. 16	**2.** 15	**3.** 23	**4.** 312	**5.** 423
20	30	40	200	300
6. 94	**7.** 82	**8.** 96	**9.** 219	**10.** 546
70	60	90	400	800
11. 78	**12.** 96	**13.** 87	**14.** 567	**15.** 987
50	80	60	800	900

Copy these examples, and then find the answers:

16. 50×95.	**20.** 60×98.	**24.** 300×986.
17. 70×72.	**21.** 80×47.	**25.** 600×631.
18. 90×87.	**22.** 70×68.	**26.** 800×948.
19. 80×76.	**23.** 60×97.	**27.** 700×867.

WHEN we studied page 290 we learned that a number ending in zero can be divided by 10 by simply dropping the zero from the right.

Since $4 \times 100 = 400$, we also have this rule:

Dropping two zeros from the right of a number ending in two or more zeros divides it by 100.

Divide each of these numbers by 10:

1. 170.	3. 260.	5. 320.	7. 450.	9. 710.
2. 100.	4. 200.	6. 360.	8. 840.	10. 1000.

Divide each of these numbers by 100:

11. 200.	14. 600.	17. 2100.	20. 3500.	23. 6000.
12. 500.	15. 800.	18. 2500.	21. 3900.	24. 9000.
13. 700.	16. 300.	19. 2000.	22. 3000.	25. 7000.

26. How many dimes can you get for 50¢? for 70¢?

27. How many dollars can you get for 500¢?

28. If 10 chairs cost $20, what does 1 chair cost?

29. The school board paid $800 for 100 tons of coal. How many dollars did they pay for 1 ton?

30. The ice man has 2500 lb. of ice in 100 cakes of the same size. How much does each cake weigh?

31. At 100 miles an hour, how long will it take an airplane to fly 1200 miles?

1. Count by 11's to 99, beginning 11, 22, 33.

2. Read and learn this table of 11's:

$1 \times 11 = 11$	$5 \times 11 = 55$	$9 \times 11 = 99$
$2 \times 11 = 22$	$6 \times 11 = 66$	$10 \times 11 = 110$
$3 \times 11 = 33$	$7 \times 11 = 77$	$11 \times 11 = 121$
$4 \times 11 = 44$	$8 \times 11 = 88$	$12 \times 11 = 132$

Do these multiplications as quickly as you can:

3.

11	11	11	11	11	11	11	11	11
7	3	9	4	6	8	2	5	11

4. Write the table of 11's as far as 11×12, beginning $11 \times 1 = 11$, $11 \times 2 = 22$.

5. Multiply each of these numbers by 11: 8, 6, 12, 4, 9, 11, 3, 7, 5.

6. How many 11's are there in 22? in 88? in 99?

Give the answers:

7. $44 \div 11$.	10. $77 \div 11$.	13. $55 \div 11$.
8. $99 \div 11$.	11. $88 \div 11$.	14. $33 \div 11$.
9. $66 \div 11$.	12. $121 \div 11$.	15. $132 \div 11$.

16. At \$11 each, how many chairs will \$44 buy?

17. There are 132 seats in the assembly room, with 11 seats in each row. How many rows are there?

1. How many eggs are there in 1 doz. (dozen) eggs? in 2 doz.? in 3 doz.?

2. Read and learn this table of 12's:

$1 \times 12 = 12$	$5 \times 12 = 60$	$9 \times 12 = 108$
$2 \times 12 = 24$	$6 \times 12 = 72$	$10 \times 12 = 120$
$3 \times 12 = 36$	$7 \times 12 = 84$	$11 \times 12 = 132$
$4 \times 12 = 48$	$8 \times 12 = 96$	$12 \times 12 = 144$

Do these multiplications as quickly as you can:

3.

12	12	12	12	12	12	12	12	12
5	9	12	6	11	4	7	3	8

4. Write the table of 12's as far as 12×12, beginning $12 \times 1 = 12$, $12 \times 2 = 24$.

Give the answers:

5. 12×8.
6. 8×12.
7. 12×5.
8. 7×12.
9. 4×12.
10. 12×3.
11. 6×12.
12. 12×4.
13. 9×12.
14. 12×7.
15. 5×12.
16. 12×9.

17. The scoutmaster bought 6 doz. fishhooks. How many fishhooks did he buy?

18. There are 12 mo. (months) in a year. Edna is 3 yr. (years) old. How many months old is she?

1. How many 12's are there in 24? in 60? in 72?

2. Count backward by 12's from 108 to 0, beginning 108, 96, 84.

Give the missing numbers or the answers:

3. $36 =$ —— 12's.
4. $60 =$ —— 12's.
5. $96 =$ —— 12's.
6. $48 =$ —— 12's.
7. $72 =$ —— 12's.
8. $108 =$ —— 12's.
9. $24 \div 12$.
10. $96 \div 12$.
11. $144 \div 12$.
12. $60 \div 12$.
13. $84 \div 12$.
14. $108 \div 12$.
15. $12\overline{)72}$
16. $12\overline{)132}$
17. $12\overline{)84}$
18. $12\overline{)36}$
19. $12\overline{)96}$
20. $12\overline{)108}$

21. Write a division table for the 12's as far as $108 \div 12$, beginning $12 \div 12 = 1$, $24 \div 12 = 2$.

Divide each of these numbers by 12:

22. 36	60	24	120	360	240	600
23. 84	96	48	144	720	960	840

24. Bessie bought 60 eggs for her Easter party. How many dozen eggs did she buy?

25. When doughnuts are 36¢ a dozen, how many cents does each doughnut cost?

26. Fred's father gives him the same amount of money each month. In 12 mo. he gave Fred $24. How many dollars does he give him each month?

1. Miss Hale took 12 children to see the ostrich farm. She paid 96¢ for the children's car fares. How much was the car fare for each child?

2. If the children should give 6 oranges to each one of the 10 ostriches, how many oranges would the children need to have?

3. In Ex. 2, Kate said that 5 doz. oranges would be enough to give each ostrich 6. Was she right?

4. An ostrich lays about 12 eggs each season. At this rate, how many eggs will 9 ostriches lay?

5. An ostrich egg weighs about 5 lb. About how much will a dozen ostrich eggs weigh?

6. It takes 40 hens' eggs to weigh as much as an ostrich egg. At this rate, 400 hens' eggs weigh as much as how many ostrich eggs?

7. One of the ostriches was 8 ft. tall. How many inches tall was it?

THIS page will help you to find out how well you can solve problems. After you have finished, mark your paper according to the scale in the table.

Correct	Mark
9 or 10	Excellent
7 or 8	Good
5 or 6	Fair
0 to 4	Poor

1. Nat has 9 marbles in one pocket and 6 in another. How many marbles has he in both pockets?

2. At 5¢ apiece, how much do 7 paper dolls cost?

3. Ruth spent 25 min. on her reading lesson and 10 min. on her spelling. How long did she study?

4. Paul has 41¢ and Joe has 35¢. How many more cents has Paul than Joe?

5. There are 36 children going to a picnic. If each car can take 9 children, how many cars are needed?

6. Ida weighs 65 lb. and Ann weighs 59 lb. How much less does Ann weigh than Ida?

7. Elsie has 7 paper dolls and Nell has 3 times as many. How many paper dolls has Nell?

8. Ned has 41¢. How much more does he need to buy a story-book that costs 50¢?

9. At 6 for 30¢, what is the cost of 1 orange?

10. Tom's bookcase has 6 shelves with 7 books on each shelf. How many books are there in all?

FRANK'S speller has 42 words on each page. Last year he studied 34 pages. How many words did he study last year?

We must multiply 42 by 34. This is the way to do it:

$4 \times 42 = 168$. Write 168 so that the 8 is under the 4 in 34.

$3 \times 42 = 126$. Write 126 so that the 6 comes under the 3 in 34.

Add 168 and 126 just as they stand. The answer is 1428. Frank studied 1428 words last year.

```
  42
  34
 168
126
1428
```

Multiply, and then check by going over your work:

1. 32	2. 23	3. 34	4. 31	5. 42	6. 53
21	12	21	22	13	32
7. 41	8. 52	9. 42	10. 41	11. 53	12. 32
36	32	21	35	22	43
13. 71	14. 60	15. 33	16. 54	17. 83	18. 42
23	14	23	12	31	23
19. 92	20. 31	21. 72	22. 70	23. 81	24. 94
24	19	43	98	79	61
25. 41	26. 84	27. 30	28. 91	29. 60	30. 81
56	12	86	78	97	86

Copy and finish these multiplication examples:

1. 59	**2.** 64	**3.** 78	**4.** 83
82	45	32	49
118	320	156	747
--2	--6	--4	--2
5. 92	**6.** 83	**7.** 79	**8.** 45
27	53	48	59
644	249	632	405
--4	--5	--6	--5

Copy and multiply, watching the carryings:

9. 74	**10.** 82	**11.** 66	**12.** 65	**13.** 42	**14.** 86
53	25	42	24	28	45
15. 35	**16.** 63	**17.** 95	**18.** 37	**19.** 48	**20.** 72
79	57	52	64	53	28
21. 47	**22.** 63	**23.** 95	**24.** 82	**25.** 52	**26.** 48
38	29	64	37	68	79
27. 58	**28.** 39	**29.** 96	**30.** 96	**31.** 58	**32.** 72
43	87	73	89	48	79
33. 86	**34.** 94	**35.** 47	**36.** 96	**37.** 85	**38.** 49
68	79	57	93	59	84

1. Jim milked Bunty, the goat. Grandfather said that he had sold 19 bottles of goats' milk a week for 12 wk. (weeks). How many bottles had he sold?

2. There were 15 new beehives in the orchard. Jim helped to take 25 lb. of honey from each hive. How many pounds were there in all?

3. Every Saturday for 21 wk. Grandfather carried 36 doz. eggs to the store. How many dozen eggs in all did he carry to the store?

4. Paul fed the horses. Each horse had 21 qt. (quarts) of oats a week. How many quarts did it take for 13 horses?

5. Spot, the best cow, gave 15 qt. of milk a day for 28 da. How many quarts did she give in that time?

6. On Monday the boys picked 13 crates of berries. There were 36 qt. in each crate. How many quarts did they pick that day?

7. In the orchard there were 16 rows of trees, with 14 trees in each row. How many trees were there?

8. There were 88 bu. (bushels) in one wagonload of apples. Each bushel weighed 48 lb. How many pounds did the load weigh?

IF YOU have an example like 90×7, you can think "$9 \times 7 = 63$" and then annex a zero to the 63. The answer is 630.

Or you can think "7×90." In this case, think "$7 \times 9 = 63$" and annex a zero to the 63. The answer is 630, as before.

7	90
90	7
630	630

It makes no difference which way you multiply. The answers are the same if you make no mistakes.

Give the answers orally:

1. 2×30.	6. 2×60.	11. 9×40.	16. 6×20.
2. 4×20.	7. 5×30.	12. 80×3.	17. 20×5.
3. 3×30.	8. 2×80.	13. 2×90.	18. 6×30.
4. 2×40.	9. 30×4.	14. 70×3.	19. 40×5.
5. 30×2.	10. 7×20.	15. 60×4.	20. 3×90.

First multiply the upper number by the lower in each of these cases. Then multiply the other way and see if the answers are the same:

21. 81	22. 62	23. 41	24. 53	25. 94	26. 87
45	95	46	65	96	69
27. 63	28. 57	29. 38	30. 93	31. 84	32. 96
83	27	28	92	97	68

MR. KENT drove a new car from Chicago to Omaha. It took him 23 hr. at 24 miles an hour. How many miles is it from Chicago to Omaha?

$3 \times 24 = 72$. Write 72 with the 2 under the 3 in 23.

$2 \times 24 = 48$. Write 48 with the 8 under the 2 in 23.

Add. The answer is 552.

24	← Multiplicand
23	← Multiplier
72	← Partial products
48	
552	← Product

Be sure you understand the terms used in the example above. The **multiplicand** is the **number multiplied**, the **multiplier** is the **number by which to multiply**, and the **product** is the **answer**.

In this case, 72 is one **partial product** and 48 is the other. Sometimes we have more than two.

Multiply, and then tell which is the multiplicand, which the multiplier, and which the product:

1. 92 57	2. 84 86	3. 47 58	4. 83 97	5. 39 86	6. 73 49
7. 79 93	8. 76 69	9. 96 67	10. 48 94	11. 67 27	12. 98 72
13. 56 68	14. 74 98	15. 85 67	16. 63 58	17. 97 96	18. 58 79

HERE is a good way to check your work in multiplication. In the example the multiplicand is 75, the multiplier is 23, and the product is 1725.

To check, multiply the other way. The product is 1725, as before.

The work is correct.

If the products are different, there is a mistake somewhere. The mistake may be either in the example or in the check. Go over your work and find it.

Example	Check
75	23
23	75
225	115
150	161
1725	1725

To check your work in multiplication, multiply the multiplier by the multiplicand. The products should be the same.

Multiply, and then check your work, as shown above, by multiplying the other way:

1. 45	2. 82	3. 96	4. 54	5. 97	6. 89
67	38	39	98	69	58
7. 48	8. 25	9. 38	10. 59	11. 63	12. 37
67	59	97	83	87	54
13. 92	14. 89	15. 17	16. 78	17. 27	18. 53
69	27	37	26	36	37

1. Lewis has filled his stamp book. There are 36 pages with 40 stamps on each page. How many stamps are there in the book?

2. Rose walks 13 blocks to school. If each block is 16 rods long, how many rods does she have to walk to get to school?

3. The boys at Camp Sunset made 15 sailboats. For each boat they used 24 in. (inches) of cloth for the sails. How many inches of cloth did they use in all?

4. A group of 19 girls are making paper flowers for a May Day party. If each girl makes 25 flowers, how many flowers will there be in all?

5. Ned helped his father mend the fence. They used 28 pieces of wood, each 36 in. long. How many inches of wood did they use in all?

6. A train that runs between Chicago and Buffalo takes 15 hr. at 35 miles an hour to make the trip. How many miles is it from Chicago to Buffalo?

7. Mrs. Clapp has a candy store. She is filling 21 boxes by putting 36 pieces in each box. How many pieces of candy does she need?

8. There are 24 hr. in a day. How many hours are there in the month of October, which has 31 da.?

9. How many hours are there in the month of February when it has 28 da.?

Multiply, and then check each answer by going over your work again:

1. 213 21	2. 923 32	3. 702 34	4. 641 25	5. 856 42
6. 945 63	7. 827 52	8. 119 39	9. 542 68	10. 923 75
11. 618 39	12. 425 47	13. 706 56	14. 821 38	15. 716 87

16. On an automobile trip to New York, Mr. Brown drove 175 miles each day. How many miles did he drive in 15 da.?

17. At 315 miles a day, how many miles can a steamship travel in 13 da.?

18. A bale of cotton weighed 498 lb. How many pounds would 14 of these bales weigh?

19. Mr. Johnson has 32 hogs to sell. If each hog weighs 225 lb., how much will all the hogs weigh?

20. Last year a school used 58 boxes of chalk. There were 144 pieces of chalk in each box. How many pieces of chalk did the school use?

21. The engine on Jim's father's train burns 243 lb. of coal for each mile that it runs. How much coal will it burn in running 75 miles?

1. At the swimming pool a ticket for the season costs $1.75. The Boy Scouts bought 67 tickets. How much did they all cost?

Multiply $1.75 by 67 just as you would multiply 175 by 67, first by 7 and then by 6.

Cents always have two places. Put the decimal point before the last two figures of the product.

$1.75
67
12 25
105 0
$117.25

The answer is $117.25; the 67 tickets cost $117.25.

2. The 36 children in Miss Blake's room gave a May Day play. The paper costumes cost 45¢ apiece. How much did all the costumes cost?

First write 45¢ as $0.45.

Multiply in the usual way.

Place the decimal point in the product so that the answer will mean 16 dollars and 20 cents.

The costumes cost $16.20.

$0.45
36
2 70
13 5
$16.20

Copy and multiply, remembering to put the decimal point in the product:

1. \$0.23 52	2. \$0.41 32	3. \$0.62 45	4. \$0.34 21	5. \$0.56 32
6. \$0.72 65	7. \$0.61 72	8. \$0.92 28	9. \$0.76 43	10. \$0.85 64

Practice until you can do these multiplications easily. Check your work by going over it again:

11. \$2.15 32	12. \$7.12 13	13. \$5.41 21	14. \$3.16 42	15. \$9.23 13
16. \$0.53 27	17. \$1.59 68	18. \$3.19 91	19. \$8.67 27	20. \$2.94 76
21. \$2.63 83	22. \$8.41 58	23. \$0.82 79	24. \$3.28 57	25. \$8.17 86
26. \$4.59 54	27. \$3.46 63	28. \$9.74 78	29. \$7.86 91	30. \$9.70 54
31. \$9.65 95	32. \$8.79 63	33. \$7.43 89	34. \$9.05 97	35. \$5.76 67
36. \$8.60 68	37. \$8.47 94	38. \$9.80 23	39. \$6.08 19	40. \$5.98 78

1. Our room has 6 windows. The cloth to make curtains will cost \$0.35 for each window. How much will it cost for all the windows?

2. The 2 new story books on the reading table cost \$0.75 each. What did both books cost?

3. The teacher bought 2 new bird books. Each book cost \$1.25. How much did she pay for both?

Find the cost of these things that the principal bought for Miss Hall's room:

4. 24 spellers at 41¢ each.

5. 21 arithmetics at 78¢ each.

6. 22 readers at 63¢ each.

7. 13 geographies at \$1.12 each.

8. 14 inkwells at 25¢ each.

9. 16 small globes at 35¢ each.

10. 15 sets of number cards at 54¢ a set.

Find the cost of these supplies that the drawing teacher needed to have:

11. 25 rulers at 12¢ each.

12. 13 jars of paste at 15¢ a jar.

13. 12 paint boxes at 33¢ a box.

14. 15 packages of paper at 45¢ a package.

15. 21 boxes of colored pencils at 18¢ a box.

IN THIS example we have multiplied 132 by 21. If we check by multiplying the other way, the multiplier will be the three-figure number 132.

$2 \times 21 = 42$. Write 42 with the 2 under the 2 in 132.

$3 \times 21 = 63$. Write 63 with the 3 under the 3 in 132.

$1 \times 21 = 21$. Write 21 with the 1 under the 1 in 132.

Make straight columns.

Example	Check
132	21
21	132
132	42
264	63
2772	21
	2772

Add the three partial products. The product is 2772, which is the same as in the example. The work is correct.

Multiply, and then check your work as above:

1. 413	2. 123	3. 432	4. 121	5. 431
21	13	21	42	13
6. 312	7. 234	8. 754	9. 526	10. 723
23	21	32	15	56
11. 914	12. 735	13. 631	14. 852	15. 974
54	68	79	46	37
16. 697	17. 816	18. 875	19. 698	20. 942
64	58	79	27	89

Review Questions

1. What is the name of the answer in addition?

2. Divide 15 by 2. What is the name of the number that is left over?

3. How much more is \$245 than \$189?

4. What is the product of 879 and 6?

5. What is the sum of eighty-six cents, nineteen dollars, and fifty-seven dollars?

6. How many 6's are there in 474?

7. What is the answer in multiplication called?

8. When you buy something that costs thirty-nine cents, how much change should you get if you give the clerk five dollars?

9. How many figures does it take to write the number nine thousand nine?

10. What is the difference between 106 and 79?

11. What is the dot in the number \$2.45 called?

12. Where do the dollar signs and the decimal points belong in the answers to these three examples?

\$50.00	\$73.19	9)\$75.24
− 8.25	× 4	836
4175	29276	

13. What is the name of the answer in subtraction?

14. How many quarters are equal to 5 dimes?

Find the sums, and then check:

1.	2.	3.	4.
2056	7456	4856	5898
608	787	780	7550
6570	420	5068	305
429	3809	379	549
3389	2037	1405	3403

Subtract, and then check:

5.	6.	7.	8.
7967	9805	8723	6900
3809	4238	1459	3172

Multiply, and then check:

9.	10.	11.	12.	13.
186	129	157	194	187
52	78	64	93	19

14.	15.	16.	17.	18.
208	316	605	298	702
87	49	78	46	73

See if you can do all these divisions:

19. $3\overline{)294}$	20. $2\overline{)174}$	21. $4\overline{)268}$	22. $6\overline{)354}$
23. $5\overline{)445}$	24. $7\overline{)525}$	25. $6\overline{)468}$	26. $8\overline{)592}$
27. $9\overline{)576}$	28. $9\overline{)855}$	29. $9\overline{)747}$	30. $7\overline{)476}$
31. $8\overline{)448}$	32. $9\overline{)648}$	33. $8\overline{)784}$	34. $6\overline{)582}$

CHAPTER SIX

PREPARING FOR LONG DIVISION

I. READING AND WRITING NUMBERS

Children's Day at the Fair

Read the statements in Exs. 1 to 4:

1. There were 13,749 children at the Fair.

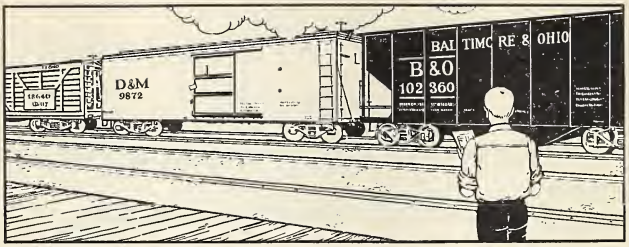
2. The merry-go-round gave 12,005 free rides.

3. One gatekeeper collected 20,202 tickets.

4. 389,542 is read "three hundred eighty-nine thousand five hundred forty-two."

Read these numbers:

5. 578,325. 7. 410,200. 9. 803,005. 11. 900,009.
6. 412,250. 8. 508,050. 10. 600,200. 12. 909,909.



Read these numbers which the man read and copied from the freight cars as they passed:

1. 1100.	4. 9872.	7. 10,002.	10. 102,360.
2. 1010.	5. 18,640.	8. 17,060.	11. 110,982.
3. 1001.	6. 11,405.	9. 20,600.	12. 133,000.

13. A railroad man usually reads the number in Ex. 1 as "one-one-o-o," using the letter O for "zero." Read each number in Exs. 1 to 12 this way.

Write these numbers in figures:

14. Eighteen thousand eight hundred.

15. Sixty thousand sixty.

16. Two hundred fifty-one thousand seven.

Write these numbers in words:

17. 15,678.	19. 29,457.	21. 67,930.	23. 265,999.
18. 18,765.	20. 46,392.	22. 50,505.	24. 373,001.

Read these statements:

1. Mr. Kay paid $10,500 for a new house.

2. Lindbergh won a prize of $25,000 when he flew across the Atlantic Ocean.

3. Our President is paid $75,000 a year.

4. Mr. Hall paid $1150.25 for his automobile.

5. The new schoolhouse cost $100,000.00.

6. On "Dollar Day" the stores took in $39,841.75.

Read these numbers, and use them in sentences like those in Exs. 1 to 6:

7. $327.60.	9. $9250.90.	11. $20,000.
8. $1498.25.	10. $10,345.00.	12. $105,000.

Business men often read $1560 as "fifteen hundred sixty dollars." Read these numbers that way:

13. $2560. 14. $1340. 15. $1675. 16. $3900.

Write sentences in which the following numbers are given in figures:

17. Four thousand five hundred dollars.

18. One thousand nine hundred two dollars.

19. Fifteen hundred dollars and sixty cents.

20. Twenty-one thousand nine hundred eighty dollars and seventy-five cents.

1. Roman numerals are written with letters instead of figures. We all know the twelve numbers that are used on clocks. Read these numbers:

I	II	III	IIII
1	2	3	4
V	VI	VII	VIII
5	6	7	8
IX	X	XI	XII
9	10	11	12

2. Except on a clock, we write 4 as IV. It means 1 less than 5. What does IX mean?

3. We often number chapters of a book with Roman numerals. Here are the numbers from 13 to 20:

XIII XIV XV XVI XVII XVIII XIX XX

Write the Roman numerals for 14, 18, 15, 19, 17.

4. We write the numbers from 20 to 30 by writing the numbers for 1 to 10 after XX. Tell what these mean: XXI, XXV, XXII, XXIV, XXIX, XXVI.

5. We write 30 as XXX. The numbers from 30 to 39 are written the same as from 20 to 29. Write the Roman numerals for 35, 32, 34, 38, 33, 37, 36, 39.

6. Read these numbers: XIX, XXI, XXXIX, XIV.

Remembering How to Divide

UNCLE JOHN'S letter says that he is sending 104 stamps for Hal, Joe, and Ned. If they divide them equally, how many will each boy have?

Ida says that she will tell them the answer if she can have the stamps that are left over. Ida finds the answer by dividing 104 by 3.

$10 \div 3 = 3$, and 1 over. Write 3.
Think of 1 before the 4.
$14 \div 3 = 4$, and 2 over. Write 4.

$$3\overline{)104}$$
$$34, \text{ 2 R}$$

This 2 is the **remainder**. The answer is "34, and 2 remainder." We can write R for "remainder."

Each boy will have 34 stamps, and Ida will have 2.

Divide, remembering to include the remainder:

1. $2\overline{)127}$	2. $3\overline{)134}$	3. $2\overline{)165}$	4. $3\overline{)127}$	5. $6\overline{)189}$
6. $3\overline{)158}$	7. $4\overline{)129}$	8. $5\overline{)158}$	9. $4\overline{)287}$	10. $7\overline{)148}$

Give the numbers that go in place of the stars:

1. 4)23 *, * R	**4.** 9)39 *, * R	**7.** 7)61 *, * R
2. 3)26 *, * R	**5.** 7)52 *, * R	**8.** 5)39 *, * R
3. 7)18 *, * R	**6.** 9)65 *, * R	**9.** 9)75 *, * R

Give the answers, including the remainders:

10. 83 ÷ 9.	**17.** 38 ÷ 4.	**24.** 58 ÷ 9.
11. 47 ÷ 8.	**18.** 46 ÷ 8.	**25.** 22 ÷ 3.
12. 49 ÷ 9.	**19.** 89 ÷ 9.	**26.** 87 ÷ 9.
13. 39 ÷ 4.	**20.** 26 ÷ 3.	**27.** 61 ÷ 8.
14. 29 ÷ 3.	**21.** 47 ÷ 9.	**28.** 34 ÷ 7.
15. 47 ÷ 7.	**22.** 35 ÷ 4.	**29.** 48 ÷ 9.
16. 57 ÷ 9.	**23.** 62 ÷ 9.	**30.** 44 ÷ 7.

Divide, remembering to include the remainders:

31. 4)25	9)70	8)69	7)68	4)19	4)34
32. 7)69	5)19	6)17	9)73	8)71	6)28
33. 8)70	6)58	4)37	8)47	9)80	7)67
34. 4)31	8)77	9)76	6)59	9)71	7)54

1. George pulled 63 radishes and tied them in bunches, putting 9 in each bunch. How many bunches did he make?

2. He pulled 58 onions and put 8 in a bunch. How many bunches did he have? How many onions were left over?

3. Ida has 50¢ to spend for flower seeds. At 6¢ a package, how many packages can she buy, and how many cents will be left?

4. Carl had 70 pepper plants to set out. He put 9 in a row. How many rows did he have, and how many plants remained to be set out?

5. At 4¢ each, how many pears can Hal buy with 25¢, and how many cents will be left over?

6. There are 27 mints for 6 girls. How many can each girl have? How many mints will be left over?

7. Sam has 60 min. before supper. It takes 9 min. to weed a row of beets. How many whole rows can he weed, and how many minutes will be left?

8. Alice picked 75 daisies for wreaths. If she puts 8 daisies in each wreath, how many wreaths can she make, and how many daisies will not be used?

See how quickly you can give the answers, including the remainders:

1.	5)21	4)38	6)27	3)19	8)50	5)47
2.	7)39	6)32	7)24	3)26	9)22	8)75
3.	4)33	9)47	7)50	4)25	2)17	3)22
4.	8)65	3)29	8)45	4)21	8)29	5)33
5.	2)13	7)30	6)25	8)19	5)27	6)51
6.	5)12	4)30	9)28	6)55	7)18	8)43
7.	7)60	6)19	8)35	5)37	6)43	9)75
8.	3)14	8)59	2)15	9)55	8)27	7)15
9.	6)37	5)17	9)86	7)57	6)31	9)48
10.	4)15	2)19	9)67	5)42	8)66	9)83
11.	7)64	6)11	9)78	8)18	9)84	4)26
12.	9)19	7)45	8)61	5)49	8)60	6)56
13.	7)16	8)73	9)58	7)31	6)57	7)65
14.	4)37	7)58	6)47	9)37	7)17	8)53
15.	8)17	3)28	9)57	6)39	7)62	9)17
16.	5)23	9)29	8)76	6)58	7)79	8)52
17.	8)58	7)61	9)65	4)39	9)77	6)59

1. It takes Aunt Mary 9 wk. to make a quilt. A year is a little over 52 wk. How many quilts can Aunt Mary make in 52 wk., and how many weeks will be left over?

2. Aunt Mary buys her thread in boxes containing 6 spools each. She has used 27 spools of white thread. How many full boxes, and how many spools besides, has she used?

3. She has used 17 spools of black thread. How many full boxes of 6 spools each, and how many spools besides, has she used?

4. Aunt Mary gave Tom 50¢. At 6¢ a spool, how many spools of thread can he buy for her, and how many cents will be left over?

5. The squares in the quilts are made of small pieces. It takes her 7 min. to make a square. How many squares can she make in 60 min., and how many minutes will be left?

6. She puts 9 small squares together to make a large square. From 115 small squares, how many large ones can she make, and how many small ones will be left?

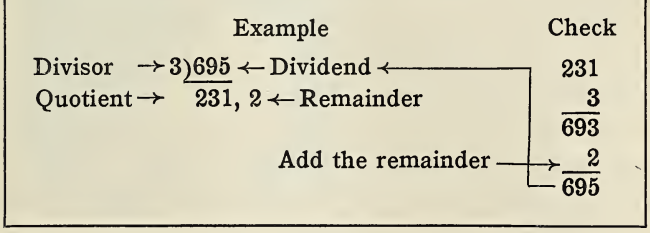
Give the answers, including remainders, orally:

1. 2)485	2. 4)847	3. 2)643	4. 3)967
5. 2)823	6. 4)485	7. 2)649	8. 3)694
9. 4)889	10. 5)557	11. 2)183	12. 3)154
13. 6)669	14. 3)185	15. 2)149	16. 6)127
17. 3)244	18. 4)286	19. 3)278	20. 7)218

Divide, giving the remainder when there is any:

21. 5)275	22. 6)210	23. 5)245	24. 4)252
25. 7)315	26. 9)288	27. 8)360	28. 6)276
29. 5)185	30. 8)288	31. 4)228	32. 9)819
33. 7)224	34. 2)797	35. 6)306	36. 3)604
37. 2)934	38. 4)329	39. 3)294	40. 5)225
41. 5)343	42. 7)119	43. 6)229	44. 4)387
45. 8)416	46. 8)768	47. 4)199	48. 5)364
49. 9)675	50. 3)835	51. 9)747	52. 5)347
53. 8)665	54. 6)459	55. 9)558	56. 6)548
57. 8)599	58. 7)658	59. 9)496	60. 7)608
61. 6)255	62. 8)697	63. 5)369	64. 7)105

LAST year we learned how to check an example in division by multiplying the quotient by the divisor. The example below shows how to check the answer when there is a remainder in the division.



Be sure that you understand these terms. The **dividend** is the **number divided**, the **divisor** is the **number to divide by**, the **quotient** is the **answer**, and the **remainder** is the **number left over.**

To check your work in division, multiply the quotient by the divisor. Add the remainder (if there is one) to the product. If the work is correct, the result is the same as the dividend.

Divide, and then check your work as above:

1. 8)593	2. 9)324	3. 7)595	4. 6)769
5. 4)679	6. 6)538	7. 8)478	8. 7)677
9. 5)929	10. 7)858	11. 8)657	12. 2)193

1. Mr. White, the baker, uses 6 eggs for a walnut cake. This morning he has 110 eggs. How many walnut cakes can he bake, and how many eggs will be left over?

2. He uses the meats of 9 walnuts in each cake. How many cakes can he make with 120 walnuts, and how many nuts will be left over?

3. Ida works in a candy shop. She has 117 boxes of candy. If she puts them in piles of 8 boxes each, how many piles can she make, and how many boxes will be left over?

4. Mrs. Merrill, the dressmaker, needs 132 buttons to trim some dresses. If there are 9 buttons on a card, how many full cards, and how many buttons over, does she need?

5. A factory packs tennis balls in boxes of 6 each. How many full boxes will 109 balls make, and how many balls will be left over?

6. The toy store sells marbles in bags holding 9 marbles each. How many bags will 200 marbles make, and how many marbles will be left over?

7. Make up a problem about marbles and solve it.

SOME pupils have trouble with zero in division. This example shows how to divide a four-figure number when there is a zero in the quotient. Study it carefully so that you will not have trouble with examples like this.

$$3\overline{)3276}\quad 1092$$

$3 \div 3 = 1$. Write the 1.

There are no 3's in 2. You should think "$2 \div 3 = 0$, and 2 over." Write the 0 under the 2 in 3276.

$27 \div 3 = 9$. Write the 9.

$6 \div 3 = 2$. Write the 2. The quotient is 1092.

Copy and divide, watching the zeros. Give the remainder, when there is one, and check your work:

1. $4\overline{)8364}$	2. $9\overline{)1827}$	3. $7\overline{)4921}$	4. $6\overline{)5436}$
5. $8\overline{)7264}$	6. $8\overline{)8096}$	7. $9\overline{)6345}$	8. $7\overline{)4256}$
9. $2\overline{)9618}$	10. $3\overline{)5103}$	11. $8\overline{)9624}$	12. $9\overline{)6339}$
13. $7\overline{)7021}$	14. $6\overline{)5412}$	15. $9\overline{)9054}$	16. $5\overline{)5040}$
17. $3\overline{)8406}$	18. $7\overline{)8452}$	19. $4\overline{)7617}$	20. $6\overline{)9006}$
21. $2\overline{)9015}$	22. $6\overline{)6018}$	23. $9\overline{)2781}$	24. $7\overline{)6350}$
25. $4\overline{)8021}$	26. $3\overline{)6013}$	27. $6\overline{)6043}$	28. $9\overline{)9029}$
29. $8\overline{)9640}$	30. $6\overline{)8408}$	31. $5\overline{)5049}$	32. $7\overline{)9128}$
33. $9\overline{)8154}$	34. $5\overline{)7025}$	35. $8\overline{)6469}$	36. $6\overline{)9036}$

HERE are two problems in division in which the last figure in the quotient is zero. Study them carefully and be sure that you understand the work.

1. A class is making scrapbooks for a children's home. If they put 2 pictures on a page, how many pages will 320 pictures fill?

$3 \div 2 = 1$, and 1 over. Write 1.
$12 \div 2 = 6$. Write 6.
$0 \div 2 = 0$. Write 0.

$$2\overline{)320}\quad 160$$

The quotient is 160. The pictures will fill 160 pages.

2. A music store paid \$1000 for 4 pianos. How much did each piano cost?

$10 \div 4 = 2$, and 2 over. Write 2.
$20 \div 4 = 5$. Write 5.
$0 \div 4 = 0$. Write 0.

$$4\overline{)1000}\quad 250$$

The quotient is 250. It means \$250 because the 1000 means dollars. Each piano cost \$250.

Divide, and then check your work:

1. $3\overline{)570}$	2. $5\overline{)850}$	3. $6\overline{)540}$	4. $7\overline{)840}$
5. $4\overline{)600}$	6. $6\overline{)960}$	7. $2\overline{)700}$	8. $3\overline{)870}$
9. $6\overline{)900}$	10. $4\overline{)680}$	11. $5\overline{)900}$	12. $6\overline{)840}$
13. $8\overline{)960}$	14. $7\overline{)910}$	15. $5\overline{)700}$	16. $3\overline{)780}$
17. $8\overline{)9760}$	18. $7\overline{)9940}$	19. $5\overline{)7100}$	20. $6\overline{)9840}$

GRACE had a problem in which she had to divide 751 by 3. After writing the numbers, she divided like this:

$7 \div 3 = 2$, and 1 over. She wrote 2.

$15 \div 3 = 5$. She wrote the 5 after the 2.

$1 \div 3 = 0$, and 1 over. She wrote 1 R to show that the remainder was 1.

Wrong	Right
3)751	3)751
25, 1 R	250, 1 R

What did Grace forget to do?

Be careful not to make a mistake like Grace's. Remember to write the zero in the quotient.

Divide, and then check your work:

1. 4)521	2. 6)723	3. 8)962	4. 5)653
5. 3)272	6. 7)985	7. 5)852	8. 4)963
9. 4)363	10. 5)452	11. 4)323	12. 7)635
13. 6)544	14. 2)961	15. 3)242	16. 2)781
17. 6)485	18. 8)727	19. 7)496	20. 9)725
21. 9)813	22. 8)645	23. 9)638	24. 5)403
25. 9)548	26. 4)803	27. 3)601	28. 8)566
29. 3)902	30. 2)801	31. 9)183	32. 6)843
33. 7)495	34. 9)907	35. 6)845	36. 8)967

JOHN is learning to play the cornet. His father paid $11.25 for 9 lessons. How much did he pay for each lesson?

Divide $11.25 by 9 just as you would divide 1125 by 9. Write the $ sign and the decimal point in the dividend.

Put a decimal point in the quotient under the point in the dividend.

$$9\overline{)\$11.25}\quad\$1.25$$

Write the $ sign in the quotient; the answer is $1.25. John's father paid $1.25 for each lesson.

Here is another example which shows how to divide numbers representing dollars and cents. Study it carefully and be sure that you understand it.

The answer $0.85 means 85¢.

$$3\overline{)\$2.55}\quad\$0.85$$

See how quickly you can do these divisions:

1. $5\overline{)\$6.25}$	4. $6\overline{)\$5.76}$	7. $2\overline{)\$7.12}$	10. $5\overline{)\$1.75}$
2. $6\overline{)\$3.54}$	5. $8\overline{)\$3.36}$	8. $9\overline{)\$5.04}$	11. $4\overline{)\$24.48}$
3. $7\overline{)\$9.24}$	6. $9\overline{)\$7.92}$	9. $3\overline{)\$5.40}$	12. $8\overline{)\$34.56}$

Find the quotient and the number of cents left over:

13. $5\overline{)\$1.72}$	15. $6\overline{)\$45.69}$	17. $9\overline{)\$70.25}$
14. $4\overline{)\$3.29}$	16. $7\overline{)\$53.35}$	18. $8\overline{)\$62.35}$

Months, Weeks, and Days

1. December, the Christmas month, is the last month of the year. Name all the months of the year, beginning with January.

2. How many months are there in a year?

3. We often write **Dec.** for **December.** Tell what these mean: Jan., Mar., Sept., Apr., Nov., Aug., Oct., Feb.

DECEMBER

Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

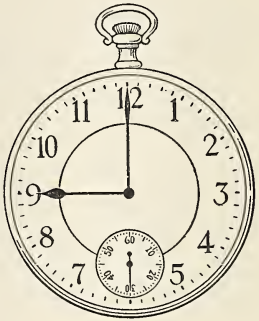
4. How many days are there in a week? How many days are there in December? in June? in February?

7 days (da.) = 1 week (wk.)
About 52 weeks = 1 year (yr.)
12 months (mo.) or 365 days = 1 year
366 days = 1 leap year

5. Clara was born July 2, 1919. How old was she on July 2, 1929? Helen was born December 2, 1919. Clara is how many months older than Helen?

6. John's big brother earns $10 a week, and Bert's earns $40 a month. Which one gets more money in a year? In which month do they get the same amount?

1. To what number is the minute hand of this watch pointing? To what number is the hour hand pointing? What time is it by this watch?



2. It takes the second hand of the watch 60 seconds to go round the small circle once. To what number is this hand pointing now?

3. The second hand goes round the small circle once in a minute. How many seconds are there in a minute?

4. It took Bess 2 minutes to finish a row of arithmetic examples. How many seconds did it take her?

60 seconds (sec.) = 1 minute (min.)
60 minutes = 1 hour (hr.)
24 hours = 1 day (da.)

5. Each day begins at midnight. How many hours are there from 12 o'clock midnight until 12 o'clock noon? from noon until midnight?

6. The letters A.M. mean **before noon**, and the letters P.M. mean **after noon**. We write **25 min. past 9 in the morning** as 9:25 A.M. How long is it from 9:25 A.M. to 9:25 P.M.? from 11 A.M. to 3 P.M.?

THE card on our mail box tells the time at which the postman comes to collect the letters that people have left there. This is what the card says:

DAILY COLLECTIONS	
A. M.	P. M.
7:30	3:20
11:15	6:45
SUNDAY	
9:00	5:30

1. How many minutes are there between the two daily collections in the morning? in the afternoon?

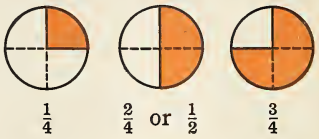
2. How many hours, and how many minutes over, are there between the two collections on Sunday?

3. Bob mails a letter at 10:45 Sunday morning. How long will it be until the postman takes it?

4. How many hours are there between the Sunday afternoon collection and the first one on Monday?

5. It takes the postman 50 min. to reach the post office after collecting the mail at our box. At what time does he reach the post office after the collection at 7:30 A.M.? at 11:15 A.M.? at 3:20 P.M.?

1. At quarter past 9, or 9:15, the minute hand has moved **one fourth** of the way round the clock, as shown by the colored part of the first circle. How much is $60 \div 4$? How much is $\frac{1}{4}$ of 60? How many minutes are there in $\frac{1}{4}$ hr.?



2. At half past 9, or 9:30, the minute hand has moved **two fourths**, or **one half**, of the way round the clock, as shown in the second circle. How much is $\frac{1}{2}$ of 60? How many minutes are there in $\frac{1}{2}$ hr.?

3. At quarter to 10, or 9:45, the minute hand has moved **three fourths** of the way round the clock. How many minutes are there in $\frac{1}{4}$ hr.? in $\frac{2}{4}$ hr.? in $\frac{3}{4}$ hr.?

4. How many hours are there in $\frac{1}{4}$ of 4 hr.? in $\frac{1}{2}$ of 4 hr.? in $\frac{3}{4}$ of 4 hr.?

Give the answers:

5. $\frac{1}{2}$ of 4 wk.
6. $\frac{1}{2}$ of 30 da.
7. $\frac{1}{2}$ of 12 mo.
8. $\frac{1}{2}$ of 24 hr.
9. $\frac{1}{2}$ of 60 sec.
10. $\frac{1}{2}$ of 52 wk.
11. $\frac{1}{4}$ of 4 wk.
12. $\frac{3}{4}$ of 4 wk.
13. $\frac{1}{4}$ of 12 mo.
14. $\frac{3}{4}$ of 12 mo.
15. $\frac{1}{4}$ of 24 hr.
16. $\frac{3}{4}$ of 24 hr.
17. $\frac{1}{4}$ of 28 da.
18. $\frac{3}{4}$ of 28 da.
19. $\frac{1}{4}$ of 60 sec.

20. We often call 4 wk. a month. What part of a month is 1 wk.? 2 wk.? 3 wk.?

Practice until you can give all these number combinations easily:

1.	6	13	9	7	14	8	13	9
	×9	−5	×4	+8	−6	+5	−9	+7
2.	9	13	8	10	9	15	8	14
	+8	−7	+6	−3	×8	−7	×9	−7
3.	14	10	9	12	9	7	14	9
	−5	−2	×9	−7	+6	+7	−8	+5
4.	5	6	11	9	10	7	15	3
	+8	×8	−5	×6	−4	+6	−9	×9
5.	7	15	9	11	4	15	6	14
	×9	−6	+4	−6	×9	−8	×7	−9
6.	5	13	7	12	7	16	5	17
	+9	−6	×8	−3	+4	−9	+7	−9
7.	16	7	11	7	12	6	11	8
	−7	×7	−2	+9	−4	+9	−8	+9
8.	9	8	16	5	13	8	8	12
	+3	+4	−8	×9	−4	+7	×6	−8
9.	8	6	11	7	17	9	12	6
	×7	+7	−4	×6	−8	×7	−9	+8

1. Carl worked in Mr. Howe's store on Saturdays. They sold potatoes by the bushel, apples by the peck, and berries by the quart box or by the pint box. Be sure that you know this table of dry measure:

2 pints (pt.) = 1 quart (qt.)
8 quarts = 1 peck (pk.)
4 pecks = 1 bushel (bu.)

2. Carl sold 1 doz. pint boxes of raspberries. How many quart boxes would they have filled?

3. Mrs. King bought 6 pk. of peas for canning. How many quarts did she buy?

4. Mr. Howe sold 10 bu. of apples by the peck. How many pecks did he sell?

5. Dora and Nell picked 12 qt. of wild gooseberries. How many pints did they pick?

6. Roy bought a 2-bushel bag of oats for his pony. How many pecks did he buy?

7. Jim's uncle sent him 16 qt. of nuts. How many pecks did he send him?

8. Mrs. Lee made 10 pt. of raspberry jam. How many quarts did she make?

9. Paul and Dick gathered 8 pk. of wild grapes. How many bushels did they gather?

1. Our milkman sells milk in quart and in pint bottles. He buys it from the farmers by the gallon. Be sure that you know this table of liquid measure:

2 cupfuls (c.) = 1 pint (pt.)
2 pints = 1 quart (qt.)
4 quarts = 1 gallon (gal.)

2. The children in the Lane family drink 6 pt. of milk a day. How many quarts do they drink?

3. Mrs. Bangs used 4 cupfuls of oil for salad dressing for the school picnic. How many pints did she use?

4. Mr. Rugg, the baker, used 1 gal. of milk for rolls. He used how many quarts? how many pints?

5. Mrs. Burton made 2 gal. of pickles. How many quarts of pickles did she make?

6. How many pint bottles does the milkman need for 10 gal. of milk?

7. "One and one-half quarts" may be written as $1\frac{1}{2}$ qt. Write one and one-fourth gallons this short way.

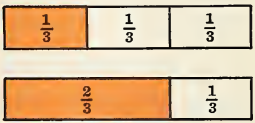
Give the missing numbers:

8. $\frac{1}{2}$ gal. = —— qt.
9. $\frac{1}{2}$ qt. = —— pt.
10. $\frac{1}{4}$ gal. = —— qt.
11. $1\frac{1}{2}$ qt. = —— pt.
12. $1\frac{1}{2}$ gal. = —— qt.
13. $1\frac{1}{4}$ gal. = —— qt.

1. How many inches long is a foot ruler? How many feet long is a yardstick? Be sure that you know this table which is used in measuring length:

> **12 inches (in.) = 1 foot (ft.)**
> **36 inches or 3 feet = 1 yard (yd.)**

2. There are 3 ft. in a yard. A foot is one of the 3 equal parts of a yard; it is **one third** of a yard. Point to $\frac{1}{3}$ of the first bar in this picture. How many thirds of the bar are not colored?



3. Point to $\frac{2}{3}$ of the second bar. How many feet are there in $\frac{2}{3}$ yd.?

4. What part of the first circle is colored? What part of the second circle is colored?

5. Draw a line 1 ft. long and divide it into thirds. How many inches are there in $\frac{1}{3}$ ft.? in $\frac{2}{3}$ ft.?

Give the answers:

6. $\frac{2}{3}$ of 12 in.
7. $\frac{1}{4}$ of 12 in.
8. $\frac{3}{4}$ of 12 in.
9. $\frac{1}{3}$ of 3 ft.
10. $\frac{2}{3}$ of 3 ft.
11. $\frac{2}{3}$ of 36 in.
12. $\frac{1}{2}$ of 36 in.
13. $\frac{1}{4}$ of 36 in.
14. $\frac{3}{4}$ of 36 in.

1. Mrs. Parker telephoned the grocer to send her a pound of coffee, a pound of butter, and 4 ounces of pepper. Then she telephoned the coal dealer to send 5 tons of coal. Tell the weights by which these things are sold: cheese, sugar, spice, hay, ice. Be sure that you know this table used in measuring by weight:

16 ounces (oz.) = 1 pound (lb.)
2000 pounds = 1 ton (T.)

2. How many pounds are there in 2 T. of coal?

3. A can of peas was marked 1 lb. 4 oz. How many ounces did it contain?

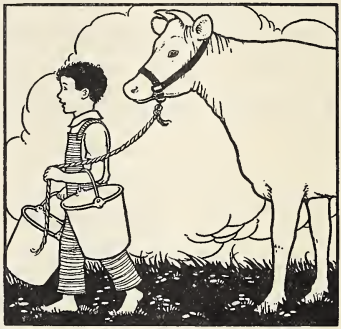
4. Mr. Allen had a load of wheat that weighed 2800 lb. This was how many pounds more than a ton?

5. The iceman had 1 T. of ice on his wagon. He delivered a piece weighing 75 lb. at Betty's house. How many pounds of ice did he have left?

Give the missing numbers:

6. 3 lb. = —— oz.
7. $\frac{1}{2}$ lb. = —— oz.
8. $\frac{1}{4}$ lb. = —— oz.
9. $\frac{3}{4}$ lb. = —— oz.
10. $1\frac{1}{2}$ lb. = —— oz.
11. 5 T. = —— lb.
12. $\frac{1}{2}$ T. = —— lb.
13. $\frac{3}{4}$ T. = —— lb.
14. $\frac{1}{4}$ T. = —— lb.
15. $1\frac{1}{2}$ T. = —— lb.

1. Uncle Henry has one cow weighing 876 lb., another weighing 900 lb., and a third weighing 790 lb. How many pounds do all the cows weigh? How many pounds more than a ton do they weigh?



2. George's cow, Bess, gives $2\frac{1}{2}$ gal. of milk each morning. How many quarts does she give? How many pint bottles will this milk fill?

3. Aunt Ellen sold a turkey that weighed $9\frac{1}{2}$ lb. How many ounces more than 9 lb. did it weigh?

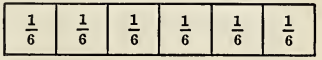
4. Roy feeds the chickens 1 qt. of cracked wheat each day. In how many days will the chickens eat 1 pk. of wheat?

5. Some of the boys in Roy's corn club raised 40 bu. from an acre of land. If Roy does as well, how many bushels will he get from his $\frac{1}{2}$-acre field?

6. Uncle Henry expects to get $\frac{1}{2}$ T. of wool from his flock of sheep. How many pounds of wool does he expect to get?

7. Betty found some hens' nests hidden in the hay. In the nests there were $1\frac{1}{2}$ doz. eggs. How many eggs did she find?

1. Into how many parts is this bar divided? What is one of 6 equal parts of anything called? How many sixths are there in 2 parts of the bar? in 4 parts? in 5 parts?



2. $\frac{2}{6}$ of the bar means 2 of its 6 equal parts. Tell what these mean: $\frac{1}{6}$, $\frac{3}{6}$, $\frac{4}{6}$, $\frac{5}{6}$.

3. In making frosting, Helen's mother used one square of chocolate from this cake. How many squares were there at first? Each square is what part of the cake? The part that is left is $\frac{7}{8}$ of the cake. What part of the cake is 2 squares? 3 squares? 5 squares?

4. Is $\frac{1}{8}$ of a cake larger than $\frac{1}{2}$ of it? Is it smaller than $\frac{1}{2}$ of it?

5. Since there are 7 da. in a week, 1 da. is $\frac{1}{7}$ of a week. What part of a week is 3 da.? 5 da.?

6. If a pie is cut into 9 equal pieces, what part of the pie is 1 piece? 4 pieces? 7 pieces?

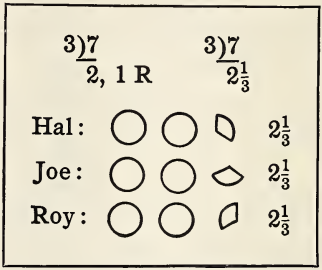
Read, putting in the missing words as you read:

7. $\frac{3}{4}$ is read ——.
8. $\frac{2}{3}$ is read ——.
9. $\frac{4}{5}$ is read ——.
10. $\frac{6}{7}$ is read ——.
11. $\frac{5}{8}$ is read ——.
12. $\frac{7}{9}$ is read ——.

MOTHER told Hal, Joe, and Roy that they could have all the cookies in the jar. There were 7 cookies in the jar. How many can each boy have?

$7 \div 3 = 2$, and 1 over.

Each one of the boys can have 2 cookies, and there will be 1 left over. They can divide this into 3 equal parts.

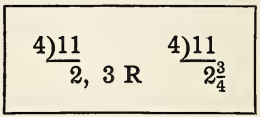


Each one of the boys can have 2 whole cookies and $\frac{1}{3}$ of the cookie that was divided. He can therefore have $2\frac{1}{3}$ cookies.

Here is another problem in which you can write the remainder this new way: "When 11 apples are divided among 4 girls, how many can each girl have?"

$11 \div 4 = 2$, and 3 over.

If we write the remainder 3 over the divisor 4, we have $\frac{3}{4}$. The answer is $2\frac{3}{4}$.



Copy and finish these examples:

1. $2\overline{)19}$ 9^{1}	2. $3\overline{)20}$ 6^{2}	3. $5\overline{)17}$ 3^{2}	4. $3\overline{)25}$ 8^{1}	5. $4\overline{)27}$ 6^{3}
6. $7\overline{)19}$ 2^{5}	7. $5\overline{)13}$ 2^{3}	8. $8\overline{)15}$ 1^{7}	9. $9\overline{)25}$ 2^{7}	10. $5\overline{)34}$ 6^{4}

MR. BATES has \$625 which he wants to put in the bank for his 4 children. If he divides the money equally, how much does he put in the bank for each child?

$625 \div 4 = 156$, and 1 over.

Writing the remainder 1 over the divisor 4 gives $\frac{1}{4}$.

4)625
$156\frac{1}{4}$
\$156.25

The answer is $\$156\frac{1}{4}$, or \$156.25. We always give such answers as dollars and cents.

Write the remainder as a fraction in the quotient, making the fraction by writing the remainder over the divisor.

Divide, using fractions for the remainders:

1. 2)97	2. 5)86	3. 4)73	4. 6)95	5. 7)860
6. 3)98	7. 2)59	8. 7)96	9. 5)99	10. 8)953
11. 6)85	12. 7)89	13. 4)87	14. 6)77	15. 3)895
16. 5)94	17. 3)59	18. 7)93	19. 3)82	20. 6)897
21. 7)79	22. 5)68	23. 4)99	24. 3)70	25. 8)890
26. 3)47	27. 8)99	28. 6)69	29. 7)53	30. 5)694
31. 8)75	32. 7)45	33. 3)85	34. 8)59	35. 9)867
36. 4)65	37. 8)97	38. 9)87	39. 6)53	40. 7)515
41. 9)60	42. 5)93	43. 8)49	44. 9)70	45. 4)935

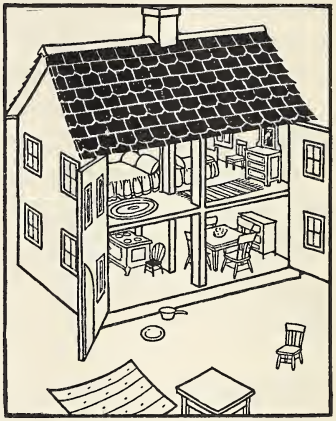
1. Ann paid 30¢ for 3 dolls' sofa pillows. At this rate, how much did she have to pay for each pillow?

2. Dorothy paid 25¢ for 6 plates. What did each plate cost?

3. May bought 6 teacups for 17¢. How much did each one cost?

4. Hazel paid 15¢ for 2 kitchen chairs. How much did each one cost?

5. Alice paid 35¢ for 2 tables. How much was this apiece?



6. Wall paper costs 50¢ for 9 pieces. How much does each piece cost?

7. Isabel bought 6 chairs for the dining room for 65¢. How much did each one cost?

8. Sue paid 10¢ for 3 dishes for the kitchen. What did each dish cost?

9. At 6 for 25¢, how much does 1 knife cost?

10. Dolls' beds are 2 for 99¢. How much is this for each one?

11. The girls bought 2 sofas for 75¢. How much did they pay for each one?

Meaning of "Average"

DID you ever hear anyone speak of an **average**? Do you know what the word means? Suppose that Hal ate 4 cookies, Joe ate 3, Ned ate 2, and Bob ate 3.

$3 + 2 + 3 + 4 = 12.$

The sum is 12. The 4 boys ate 12 cookies.

$12 \div 4 = 3.$

We say that the boys ate an average of 3 cookies apiece.

```
  4
  3
  2
  3
4)12  ← Sum
  3   ← Average
```

Hal ate 1 more than this average, but Ned ate 1 less, which made up for it.

To find an average, add the given numbers and then divide by the number of items added.

Kate practices on the piano each day. On Monday she practiced 25 min., on Tuesday 30 min., and on Wednesday 35 min. What was her average for the 3 da.?

$35 + 30 + 25 = 90.$

$90 \div 3 = 30.$

The average is 30.

```
  25
  30
  35
3)90  ← Sum
  30  ← Average
```

Kate practiced an average of 30 min. a day. Practicing 30 min. a day for 3 da. is, of course, the same as practicing 90 min. in 3 da.

1. Frank sold 50 papers on Thursday, 44 on Friday, and 62 on Saturday. Find the average number of papers sold a day during the 3 da.

2. When the girls were weighed during Health Week, Cora weighed 50 lb., Nell weighed 57 lb., Bess weighed 55 lb., and Sue weighed 54 lb. Find the average weight of the 4 girls.

3. Jane's mark in spelling was 85 in December, 87 in January, and 92 in February. What was her average mark for the 3 mo.?

4. Jane's spelling mark was 90 in March, 86 in April, and 94 in May. Find her average for these 3 mo.

5. In Exs. 3 and 4 suppose that Jane had received a mark of 100 in May instead of 94. What would her average for the 6 mo. have been?

6. Max counted the cars that passed his home on the Fourth of July. He counted 42 the first hour, 60 the second, 75 the third, 82 the fourth, and 31 the fifth. What was the average number of cars an hour?

7. Dick is saving money to buy a dog. He saved \$1.75 the first week, \$2.15 the second, and 90¢ the third. How much, on the average, did he save a week?

8. Bob's father drove 984 miles in 6 da. Find the average distance each day, noticing that here the sum is given and so there are no numbers to add.

ONE of the men who was fixing the schoolhouse roof told Jerry that they could not work on rainy days. He said that in the last 4 wk. he had worked 6 da. the first week, 4 da. the second, 6 da. the third, and 5 da. the fourth. How many days a week did this average?

Add, and divide by 4.

The quotient is $5\frac{1}{4}$.

The man had worked an average of $5\frac{1}{4}$ da. a week.

$$\begin{array}{r} 6 \\ 4 \\ 6 \\ 5 \\ \hline 4)\overline{21} \leftarrow \text{Sum} \\ 5\frac{1}{4} \leftarrow \text{Average} \end{array}$$

1. In April, May, and June, one year, the number of rainy days was 11 for April, 8 for May, and 6 for June. What was the average number a month?

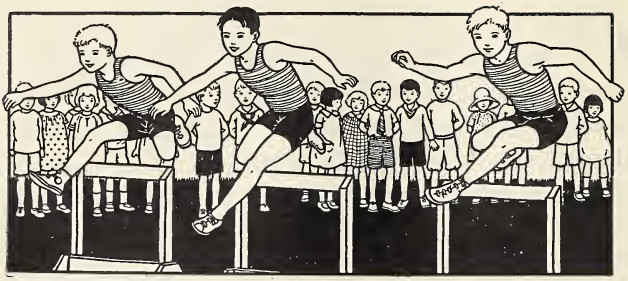
2. Mr. Harris drove 231 miles to Kansas City in 8 hr. Find the average number of miles an hour, noticing that in this case the sum is given.

3. The 6 shelves in Jane's bookcase hold 109 books. This is an average of how many books to a shelf?

4. At the Lincoln School, which has 6 rooms, there are 185 pupils. What is the average number to a room?

5. Jessie counted 190 automobiles that passed her house in 3 hr. What was the average number an hour?

6. Henrietta added her marks in 5 arithmetic tests. The sum was 461. What was her average mark?



1. The little boys ran 4 races. Ned won the first race. His time was 9 sec. Dan won the second race in 8 sec., Bill the third in 10 sec., and Roy the fourth in 10 sec. What was the average time for these races?

2. The big boys ran longer races. Here are the winners and their times: Paul, 11 sec.; Joe, 12 sec.; Ray, 12 sec.; Carl, 10 sec.; Pete, 11 sec. What was the average time for these races?

3. Alice won the first potato race for the girls in 20 sec., Nell the second in 18 sec., and Ida the third in 20 sec. Find the average time.

4. In the hopping race, May's time was 20 sec., Betty's was 18 sec., and Ada's was 17 sec. What was the average time?

5. Here are the winners and their times in the hurdle races: Joe, 13 sec.; Carl, 12 sec.; Lee, 15 sec.; Ray, 14 sec.; Dan, 13 sec. What was the average time?

Practice in Addition

See how rapidly you can do these additions:

1.	2.	3.	4.	5.	6.	7.
4	9	8	5	4	0	4
7	3	0	8	0	3	2
0	7	3	0	7	9	0
9	0	8	2	4	4	5
8	9	7	5	6	5	6
5	8	6	9	8	7	8

Add, and then check your work:

8.	9.	10.	11.	12.	13.
28	17	92	54	58	39
45	54	33	22	64	26
24	37	40	97	16	61
50	91	88	20	20	78
39	25	36	86	41	82
49	48	36	15	58	19

14.	15.	16.	17.	18.	19.
38	39	27	29	64	42
94	63	63	63	77	19
45	95	12	42	41	21
26	18	46	76	47	95
61	80	58	27	51	40
74	37	67	88	89	27
18	59	33	35	68	86

Add, and then check your work:

1.	2.	3.	4.
607	181	548	376
375	435	703	852
590	690	121	440
626	529	868	329
338	719	247	658

5.	6.	7.	8.
7697	4759	5813	9753
3530	3461	6568	8229
9244	9843	8156	1961
2793	1487	1572	8857
9545	4237	2649	4828

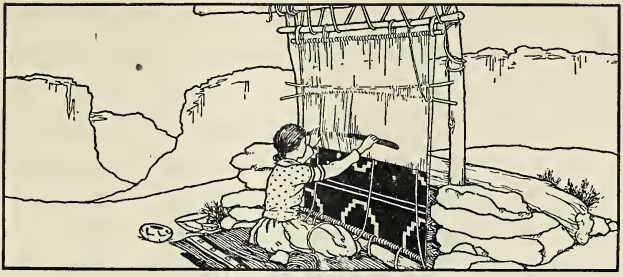
Subtract, and then check your work:

9.	10.	11.	12.
8911	98,607	98,524	$894.56
3146	17,859	23,735	526.89

13.	14.	15.	16.
7308	76,384	87,893	$793.50
1532	29,569	18,948	324.67

17.	18.	19.	20.
5131	72,319	93,432	$846.37
2689	35,787	32,769	597.62

21.	22.	23.	24.
8120	76,181	99,240	$645.96
4875	43,984	96,252	196.87



1. An Indian woman sold for $67.50 some blankets that she had made. She had to spend $49.75 of this money for food and other things. How much did she have left toward buying a pony that she wanted?

2. The pony that she wanted to buy cost $25.75. After she had saved $19.89, how much more money did she need in order to buy the pony?

3. Another Indian woman sold all her blankets to a man for $39.75. He sold them again for $63.50. How much more did he get for them than she did?

4. There were 291,449 white people and 32,989 Indians in Arizona in a recent year. How many more white people than Indians were there that year?

5. At one time there were 335,998 Indians in the whole United States, and 10 yr. later there were 354,940. How many more Indians were there at the end of the 10 yr.?

THIS page will help you to find out how well you can solve problems. After you have finished, mark your paper according to the scale in the table.

Correct	Mark
9 or 10	Excellent
7 or 8	Good
5 or 6	Fair
0 to 4	Poor

1. There were 9 boys and 12 girls at Mollie's party. How many children were there in all?

2. Jessie bought 6 tulip bulbs at 7¢ each. How much did they all cost?

3. How many apples are there in $\frac{1}{2}$ doz. apples?

4. Bob has 36 tomato plants to set out. If he puts 9 plants in a row, how many rows will he have?

5. How many days are there in 8 wk.?

6. Alice spent a quarter for oranges and a nickel for candy. How much did she spend for both?

7. Dick sold 2 hens at 90¢ apiece. How much money did he get for them?

8. Kate paid 45¢ for some toy dishes and gave the clerk a half dollar. How much change should she get?

9. At an average of 23 miles an hour, how far did Ted's father drive in 2 hr.?

10. A train that was due at 2:55 P.M. arrived at 3:10 P.M. How many minutes late was it?

Some pupils can do a row of examples like these in 3 min. after they have copied them. Multiply, and see how long it takes you:

1. 65	2. 34	3. 58	4. 73	5. 94	6. 81
18	29	36	81	58	19
7. 49	8. 39	9. 46	10. 74	11. 85	12. 78
71	64	28	93	47	65
13. 58	14. 37	15. 96	16. 74	17. 92	18. 86
29	87	95	76	39	85

Practice until you can do all these multiplications easily and quickly:

19. 40	20. 90	21. 95	22. 687	23. 609
34	28	62	23	57
24. 58	25. 52	26. 74	27. 780	28. 304
98	49	58	32	49
29. 60	30. 97	31. 35	32. 867	33. 960
56	94	75	32	23
34. 90	35. 59	36. 29	37. 938	38. 795
19	32	40	70	60

1. At 14¢ a quart, how much does the school lunch room pay for 52 qt. of milk?

2. At 35¢ a dozen, how much does the school lunch room pay for 14 doz. apples?

3. Lucy has 25¢ a day to spend for lunch. How much does she have for lunches in 25 da.?

4. The school lunch room pays 27¢ a pint for ice cream. How much do 36 pt. cost?

Copy by rows, and see how quickly you can multiply and check:

5. \$1.37 24	6. \$1.59 37	7. \$2.39 64	8. \$5.13 81
9. \$0.68 75	10. \$1.65 92	11. \$2.59 38	12. \$4.78 65
13. \$5.91 46	14. \$6.72 39	15. \$8.74 73	16. \$0.96 85
17. \$7.84 89	18. \$3.27 65	19. \$8.76 98	20. \$0.68 46
21. \$9.65 76	22. \$5.39 59	23. \$6.87 78	24. \$9.84 92

Review Practice in Short Division

Divide each of these numbers by 2, 3, 4, and 5, in turn, stating any remainders:

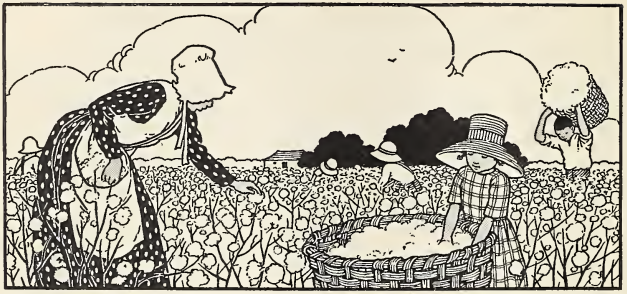
1. 13.	5. 24.	9. 15.	13. 20.	17. 29.
2. 28.	6. 18.	10. 23.	14. 17.	18. 21.
3. 16.	7. 33.	11. 31.	15. 26.	19. 25.
4. 32.	8. 14.	12. 27.	16. 19.	20. 22.

Divide each of these numbers by 6, 7, 8, and 9, in turn, stating any remainders:

21. 37.	25. 31.	29. 59.	33. 67.	37. 78.
22. 51.	26. 22.	30. 33.	34. 55.	38. 62.
23. 68.	27. 39.	31. 61.	35. 76.	39. 79.
24. 46.	28. 44.	32. 54.	36. 49.	40. 52.

Divide, giving any remainders as fractions:

41. $256 \div 8$.	47. $441 \div 9$.	53. $1845 \div 7$.
42. $252 \div 9$.	48. $483 \div 5$.	54. $4333 \div 9$.
43. $468 \div 6$.	49. $445 \div 6$.	55. $2399 \div 7$.
44. $339 \div 7$.	50. $392 \div 8$.	56. $3373 \div 5$.
45. $244 \div 5$.	51. $275 \div 7$.	57. $3227 \div 6$.
46. $363 \div 8$.	52. $467 \div 8$.	58. $8755 \div 9$.



1. If 6 children pick 815 lb. of cotton in a day, how many pounds, on the average, does each child pick?

2. There were 4475 lb. in 3 wagonloads of seed cotton. What was the average weight of a load?

3. A Mississippi farmer raised 1575 lb. of cotton on 9 acres of land. How much was this to an acre?

4. Mr. Mason had 7 bales of cotton that weighed 3486 lb. What was the average weight of the bales?

5. It takes 5 lb. of cotton seed to make 1 lb. of oil. How much oil can be made from 1321 lb. of seed?

6. In 8 da. Aunt Sally picked 1176 lb. of cotton. How many pounds did she average a day?

7. Mr. Lee had 9 pickers who picked 1188 lb. in a day. What was the average for each picker?

8. On one farm they picked 45,000 lb. of cotton in 3 mo. What was the average for a month?

WHEN you use short division in dividing 75 by 3, your work looks like this. In dividing, this is what you have to think:

$$3\overline{)75}\quad 25$$

$7 \div 3 = 2$, and 1 over. Write 2 under 7.

Think of the remainder 1 before the 5 in 75; it makes 15.

$15 \div 3 = 5$, with no remainder. Write 5 in the quotient under the 5 in 75.

The quotient is 25.

Here is another way to divide 75 by 3. Your work will look like this. We put the line over the 75 because we shall need to write the quotient over the dividend.

$$\begin{array}{r} 25 \\ 3\overline{)75} \\ 6 \\ \hline 15 \\ 15 \\ \hline \end{array}$$

Here is what you should think:

There are two 3's in 7. Write 2 in the quotient over the 7 in 75.

$2 \times 3 = 6$. Write 6 under the 7 in 75.

$7 - 6 = 1$. Write the 1.

Bring down the 5, the next figure in 75, and write it after the remainder 1, making 15.

$15 \div 3 = 5$. Write 5 in the quotient.

$5 \times 3 = 15$. Write 15 under the first 15.

$15 - 15 = 0$. There is no remainder.

The quotient is 25.

You can see why this is called long division. Always use short division whenever you can.

IN DIVIDING 750 by 30, using long division, we first take 75 and divide it by 30. The 75 is called the **partial dividend.** We do the work in these steps:

Divide. There are two 3's in 7, and so there are two 30's in 75. Write 2 in the quotient over the 5 in 75.

Multiply. $2 \times 30 = 60$. The product 60 is smaller than the 75 above it.

Subtract. $75 - 60 = 15$. The remainder 15 is smaller than the divisor 30.

```
  25
30)750
  60
 150
 150
```

Bring down. Write the 0 from the 750 after the 15.

Divide. $150 \div 30 = 5$. Write 5 in the quotient.

Multiply. $5 \times 30 = 150$. Is this small enough?

Subtract. $150 - 150 = 0$. There is no remainder.

Bring down. There are no more dividend figures, and so there is nothing to bring down.

The quotient is 25.

Learn these four steps in long division:

1. **Divide to find the quotient figure.**
2. **Multiply the divisor by this quotient figure.**
3. **Subtract the product from the partial dividend.**
4. **Bring down the next dividend figure.**

In Steps 2 and 3 ask yourself these questions:

1. **Is the product small enough to subtract?**
2. **Is the remainder smaller than the divisor?**

WHEN you divide 1620 by 30, using long division, the partial dividend with which to start is 162. Here is something to remember:

The partial dividend is the part of the dividend needed to contain the whole divisor.

The first step is "divide."

How many 3's are there in 16?

How many 30's are there in 162?

What is the last figure of the partial dividend?

Write the 5 over this 2.

$$\begin{array}{r} 5 \\ 30\overline{)1620} \end{array}$$

Always write the first quotient figure over the last figure of the partial dividend.

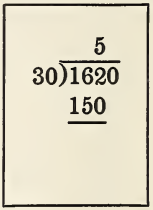
Name the partial dividend and tell where to write the first quotient figure in each of these examples:

1. $20\overline{)60}$	3. $40\overline{)80}$	5. $30\overline{)810}$	7. $50\overline{)750}$
2. $30\overline{)120}$	4. $40\overline{)840}$	6. $70\overline{)210}$	8. $60\overline{)240}$

Copy these examples, and in each one write the first quotient figure in its correct place:

9. $11\overline{)451}$	12. $21\overline{)987}$	15. $82\overline{)1968}$	18. $81\overline{)1944}$
10. $61\overline{)854}$	13. $32\overline{)672}$	16. $71\overline{)2485}$	19. $81\overline{)3888}$
11. $51\overline{)612}$	14. $42\overline{)882}$	17. $90\overline{)5850}$	20. $61\overline{)5795}$

IN DIVIDING 1620 by 30, what is the first step? What is the first quotient figure? Where do you write it?



The second step is "**multiply.**"

In this case, multiply the divisor 30 by the quotient figure 5.

$5 \times 30 = 150$. Write 150 under the partial dividend 162.

Remember this question:

Is the product small enough to be subtracted from the number above it?

Copy each of these examples, multiply the divisor by the given quotient figure, and write the product:

3	1	4	7
1. 30)930	4. 71)923	7. 81)3564	10. 80)5760
1	4	3	5
2. 51)663	5. 21)861	8. 41)1435	11. 71)3692
3	1	9	4
3. 32)992	6. 62)868	9. 60)5520	12. 52)2184

Multiply rapidly, as you will need to in division:

13. 31 by 5.	16. 52 by 4.	19. 91 by 6.	22. 40 by 3.
14. 61 by 8.	17. 81 by 7.	20. 63 by 2.	23. 21 by 9.
15. 71 by 6.	18. 51 by 9.	21. 91 by 8.	24. 32 by 7.

WHAT is the first step in dividing 1620 by 30 by long division? What is the second step? What is the product in the second step? Where do you write it?

The third step is "**subtract.**"

In this case, subtract the product 150 from the partial dividend 162.

Write the remainder 12.

Remember to ask yourself this question each time:

$$\begin{array}{r} 5 \\ 30\overline{)1620} \\ 150 \\ \hline 12 \end{array}$$

Is the remainder after subtracting the product smaller than the divisor?

Here 12 is smaller than 30. If you find that the remainder is larger than the divisor, you will know that the quotient figure is too small. In such a case,

Try a larger number and multiply again.

Copy and subtract, asking yourself the question about the remainder:

$$\begin{array}{r} 2 \\ 1.\ 32\overline{)672} \\ 64 \end{array} \qquad \begin{array}{r} 3 \\ 3.\ 71\overline{)2272} \\ 213 \end{array} \qquad \begin{array}{r} 4 \\ 5.\ 81\overline{)3888} \\ 324 \end{array} \qquad \begin{array}{r} 8 \\ 7.\ 61\overline{)5795} \\ 488 \end{array}$$

$$\begin{array}{r} 2 \\ 2.\ 41\overline{)861} \\ 82 \end{array} \qquad \begin{array}{r} 1 \\ 4.\ 61\overline{)732} \\ 61 \end{array} \qquad \begin{array}{r} 6 \\ 6.\ 90\overline{)5580} \\ 540 \end{array} \qquad \begin{array}{r} 2 \\ 8.\ 82\overline{)1968} \\ 164 \end{array}$$

IN DIVIDING 1620 by 30 by long division, what is the first step? the second? the third? In which step do you get the remainder 12?

The fourth step is "**bring down.**"

In this case, bring down the 0 and write it after the 12, making 120.

Begin again with the four steps:

Divide. $120 \div 30 = 4$. Write 4 in the quotient.

Multiply. $4 \times 30 = 120$. Write the product under the first 120.

Subtract. There is no remainder.

Bring down. There are no more dividend figures.

The quotient is 54; that is, $1620 \div 30 = 54$.

Bring down each figure of the dividend in turn.

Be sure to write the figures of the dividend far enough apart so that you will not overlook one when you need to bring it down.

Divide, using long division:

1. $3920 \div 40$.	**6.** $2280 \div 40$.	**11.** $4320 \div 60$.
2. $3240 \div 40$.	**7.** $2950 \div 50$.	**12.** $7360 \div 80$.
3. $1920 \div 30$.	**8.** $5760 \div 60$.	**13.** $8730 \div 90$.
4. $2850 \div 30$.	**9.** $3990 \div 70$.	**14.** $7840 \div 80$.
5. $6860 \div 70$.	**10.** $7830 \div 90$.	**15.** $4850 \div 50$.

Give the answers:

1. 5×11.	4. 0×11.	7. 6×11.
2. 1×11.	5. 7×11.	8. 3×11.
3. 4×11.	6. 9×11.	9. 8×11.

Divide each of these numbers by 11:

10. 44. 12. 440. 14. 660. 16. 2200. 18. 7700.
11. 99. 13. 880. 15. 990. 17. 5500. 19. 3300.

Give the answers:

20. 8×12.	23. 3×12.	26. $72 \div 12$.
21. 6×12.	24. 5×12.	27. $96 \div 12$.
22. 9×12.	25. 7×12.	28. $108 \div 12$.

Divide each of these numbers by 12:

29. 96. 31. 960. 33. 840. 35. 2400. 37. 4800.
30. 72. 32. 120. 34. 600. 36. 1080. 38. 3600.

Divide each of these numbers by 11, and then by 12, giving the remainders, if any:

39. 23.	42. 35.	45. 78.	48. 95.	51. 68.
40. 99.	43. 77.	46. 60.	49. 72.	52. 57.
41. 48.	44. 89.	47. 59.	50. 37.	53. 25.

YOU already know how to check your work in short division. We check long division the same way, as shown in this example.

Example	Check
26	26
11)286 ←	11
22	26
66	26
66	286

In dividing 286 by 11, what is the partial dividend?

Divide. There are two 11's in 28. Write 2 in the quotient.

Multiply. $2 \times 11 = 22$. Is 22 small enough to subtract from the partial dividend?

Subtract. $28 - 22 = 6$. Is the remainder 6 smaller than the divisor?

Bring down. Use the 6 from 286, making 66.

Divide. $66 \div 11 = 6$. Write 6 in the quotient.

Multiply. $6 \times 11 = 66$. Write the product.

Subtract. $66 - 66 = 0$. There is no remainder.

Bring down. There are no more dividend figures.

The quotient is 26; that is, $286 \div 11 = 26$.

CHECK. $11 \times 26 = 286$, which is the same as the dividend. The answer is right.

Divide by 11, using long division, and then check:

1. 187.	5. 253.	9. 341.	13. 3982.	17. 8976.
2. 231.	6. 495.	10. 583.	14. 2992.	18. 7843.
3. 352.	7. 374.	11. 561.	15. 8987.	19. 5940.
4. 594.	8. 682.	12. 693.	16. 6985.	20. 4796.

THIS example shows how to divide 6384 by 12. The different steps are not marked as they are on page 362. Name the steps and ask yourself the questions as you follow the work.

$$\begin{array}{r} 532 \\ 12\overline{)6384} \\ \underline{60} \\ 38 \\ \underline{36} \\ 24 \\ \underline{24} \end{array}$$

12's in 63 are 5. Write 5.
$5 \times 12 = 60$. Write 60.
$63 - 60 = 3$. Write 3.
Bring down 8, making 38.
12's in 38 are 3. Write 3.
$3 \times 12 = 36$. Write 36.
$38 - 36 = 2$. Write 2.
Bring down 4, making 24.
$24 \div 12 = 2$. Write 2 as the last quotient figure.
$2 \times 12 = 24$. Write 24.
$24 - 24 = 0$. There is no remainder, and there are no more figures to bring down.
The quotient is 532.
Check the answer by multiplying. Is it right?

Divide by 12, using long division, and then check:

1. 252.	6. 684.	11. 396.	16. 3852.	21. 8892.
2. 384.	7. 876.	12. 180.	17. 8676.	22. 4968.
3. 996.	8. 744.	13. 492.	18. 4992.	23. 7584.
4. 864.	9. 888.	14. 768.	19. 7344.	24. 3744.
5. 276.	10. 264.	15. 852.	20. 3984.	25. 4956.

MR. BOND owns a piano store. He paid $6594 for 21 pianos. How much, on the average, did he pay for each one?

We find the average by dividing 6594 by 21.

21 is about the same as 20.

How many 20's are there in the partial dividend 65?

How many 2's are there in 6?

When the divisor is 21, you can think of dividing by 2 to find the quotient figure.

Work	Check
314	314
21)6594	21
63	314
29	628
21	6594
84	
84	

Give the four division steps and the questions for each quotient figure.

The quotient is 314. The average price of the pianos was $314. The check shows that this is right.

Divide each of these numbers by 21, and then check:

1. 672.	7. 882.	13. 2625.	19. 4893.	25. 8673.
2. 483.	8. 693.	14. 6636.	20. 6573.	26. 4536.
3. 735.	9. 651.	15. 2646.	21. 6783.	27. 8715.
4. 525.	10. 462.	16. 2751.	22. 2982.	28. 2835.
5. 546.	11. 861.	17. 8988.	23. 2583.	29. 4515.
6. 945.	12. 441.	18. 4473.	24. 6741.	30. 7581.

1. Mr. Fry hired 31 children to pick berries on his berry farm. They picked 1364 quarts in all. How many quarts, on the average, did each one of the children pick?

The average is 1364 ÷ 31.
31 is about the same as 30.
How many 30's are there in 136?
How many 3's are there in 13?
The first quotient figure is 4.

$$\begin{array}{r} 4 \\ 31\overline{)1364} \\ 124 \\ \hline 12 \end{array}$$

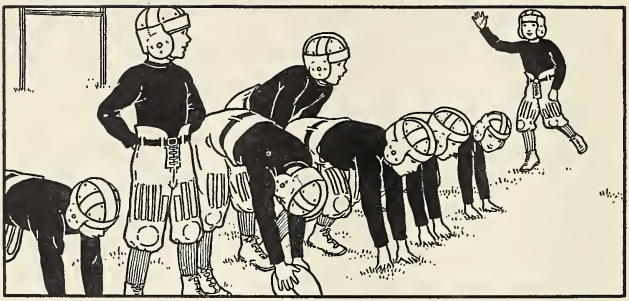
Now show how to finish the example and find the average number of quarts.

2. Mr. Fry sold 768 qt. of berries last week. How many 32-quart crates did they fill?

3. Mabel belongs to a canning club. The 23 members canned 276 qt. of berries. How many quarts, on the average, did they can apiece?

Divide, and then check your work:

4. 992 ÷ 31.
5. 352 ÷ 22.
6. 682 ÷ 31.
7. 357 ÷ 21.
8. 396 ÷ 22.
9. 651 ÷ 31.
10. 462 ÷ 22.
11. 448 ÷ 32.
12. 378 ÷ 21.
13. 286 ÷ 22.
14. 399 ÷ 21.
15. 264 ÷ 22.
16. 496 ÷ 31.
17. 484 ÷ 22.
18. 1155 ÷ 21.
19. 1365 ÷ 21.
20. 3552 ÷ 32.
21. 3472 ÷ 31.
22. 1491 ÷ 21.
23. 6996 ÷ 33.
24. 1281 ÷ 21.



1. At the Park School there are 143 boys who want to play football. How many football teams of 11 boys each can they have?

2. It cost $198 to buy footballs, suits, helmets, and so on, for 11 players. How much was this apiece?

3. In 12 wk. the boys practiced 132 hr. What was the average number of hours a week?

4. In practice one day the first team made 242 yd. on 11 forward passes. How many yards did this average for each pass?

5. At 21 games they sold 2772 admission tickets. What was the average number sold at each game?

6. At the 21 games they also sold 1491 reserved seats. Find the average number sold at each game.

7. In the first 13 games the team made 156 points. What was the average number for each game?

1. Mr. Reed cut 276 roses yesterday. He put them in 23 bunches of equal size. How many roses did he put in each bunch?

2. Mr. Reed and his helper set out 448 tulip bulbs in 32 rows. How many bulbs did they put in each row?

3. They cut 288 lilies on Monday. How many dozen lilies was this?

4. They needed more land for flowers. Mr. Reed paid $2625 for 21 lots near the greenhouse. How much was this for each lot?

Divide, and then check your work:

5. $1464 \div 61$.
6. $1183 \div 91$.
7. $1769 \div 61$.
8. $1274 \div 91$.
9. $1647 \div 61$.
10. $1278 \div 71$.
11. $1134 \div 81$.
12. $1638 \div 91$.
13. $1122 \div 51$.
14. $1281 \div 61$.
15. $1458 \div 81$.
16. $1729 \div 91$.
17. $1136 \div 71$.
18. $1365 \div 91$.
19. $2272 \div 71$.
20. $1952 \div 61$.
21. $1215 \div 81$.
22. $1708 \div 61$.
23. $1633 \div 71$.
24. $1547 \div 91$.
25. $2343 \div 71$.
26. $1539 \div 81$.
27. $1173 \div 51$.
28. $1681 \div 41$.
29. $1456 \div 91$.
30. $1349 \div 71$.
31. $1562 \div 71$.

See how quickly you can do these divisions:

1. $60 \div 20$.
2. $210 \div 30$.
3. $270 \div 30$.
4. $720 \div 90$.
5. $630 \div 70$.
6. $540 \div 60$.

In these examples divide and then check. Some of the divisors end in 4 or 5, but you can find the quotient figures in the same way as for divisors ending in 1, 2, or 3:

7. $372 \div 31$.
8. $336 \div 21$.
9. $575 \div 23$.
10. $484 \div 22$.
11. $483 \div 23$.
12. $816 \div 51$.
13. $976 \div 61$.
14. $663 \div 51$.
15. $294 \div 14$.
16. $275 \div 25$.
17. $385 \div 35$.
18. $793 \div 61$.
19. $264 \div 24$.
20. $165 \div 15$.
21. $1782 \div 81$.
22. $2662 \div 22$.
23. $3872 \div 32$.
24. $3751 \div 31$.
25. $2875 \div 23$.
26. $3441 \div 31$.
27. $2599 \div 23$.
28. $1443 \div 13$.
29. $4642 \div 22$.
30. $2783 \div 23$.
31. $2954 \div 14$.
32. $1469 \div 13$.
33. $1665 \div 15$.
34. $4884 \div 44$.
35. $3696 \div 33$.
36. $1342 \div 61$.
37. $2464 \div 22$.
38. $3774 \div 34$.
39. $4899 \div 23$.
40. $6541 \div 31$.
41. $6996 \div 33$.
42. $1568 \div 14$.
43. $2769 \div 13$.
44. $2664 \div 24$.
45. $8733 \div 71$.
46. $5994 \div 54$.
47. $6752 \div 32$.
48. $4876 \div 23$.

Filling the Blanks

Tell what belongs in each of these blanks:

1. In $\frac{1}{4}$ lb. there are —— ounces.
2. To divide 6752 by 32, —— division is used.
3. 15,908 – 8125 = ——.
4. In $\frac{2}{3}$ yd. there are —— feet.
5. \$80.19 + 51¢ + \$2.25 + \$13 = ——.
6. 11 qt. = —— gallons and —— quarts.
7. 4899 ÷ 23 = ——.
8. In $\frac{3}{4}$ hr. there are —— minutes.
9. X, VI, and III are —— numerals.
10. A dollar is equal to —— quarters.
11. In $1\frac{1}{4}$ bu. there are —— pecks.
12. There are 30 da. in each of —— months.
13. 25¢ + 15¢ is equal to —— dimes.
14. In $1\frac{1}{2}$ doz. eggs there are —— eggs.
15. A peck of berries will fill —— quart boxes.
16. The average of 5, 2, 6, and 3 is ——.
17. 305 is —— more than 296.
18. In 1 ft. 6 in. there are —— inches.
19. The answer in —— is called the product.
20. The 2:45 P.M. train leaves at —— minutes before 3 o'clock in the ——.

Add, without copying, and check:

1.	2.	3.	4.	5.
320	204	390	203	$1.67
498	886	429	977	8.52
105	568	897	889	9.18
957	447	956	904	6.36
439	698	579	298	7.24

Subtract, and then check your work:

6.	7.	8.	9.	10.
870	745	944	855	$9.45
390	248	369	260	2.87

After copying, multiply, and then check:

11. 29 by 57.
12. 56 by 92.
13. 48 by 38.
14. 37 by 46.
15. 829 by 65.
16. 713 by 98.

Divide, and then check your work:

17. $672 \div 7$.
18. $315 \div 9$.
19. $784 \div 4$.
20. $376 \div 8$.
21. $588 \div 6$.
22. $273 \div 13$.
23. $612 \div 51$.
24. $915 \div 61$.
25. $168 \div 14$.
26. $923 \div 71$.
27. $156 \div 13$.
28. $154 \div 14$.
29. $441 \div 21$.
30. $693 \div 33$.
31. $6784 \div 32$.
32. $1159 \div 61$.
33. $2576 \div 23$.
34. $1491 \div 71$.
35. $4853 \div 23$.
36. $3993 \div 33$.
37. $1863 \div 81$.

CHAPTER SEVEN

LONG DIVISION

I. READING AND WRITING NUMBERS

Numbers Meaning Thousands

1. What year is this? In the number of this year what is the figure in ones' place? in tens' place? in hundreds' place? in thousands' place?

2. Count by 1000's from 1000 to 9000.

3. Count by 10,000's from 10,000 to 90,000.

4. Count by 100,000's from 100,000 to 900,000.

Read these numbers:

5. 1935.	8. 59,000.	11. 289,400.	14. 508,805.
6. 6006.	9. 30,030.	12. 763,819.	15. 999,999.
7. 2070.	10. 71,804.	13. 452,071.	16. 602,007.

Write these numbers in figures:

17. Sixty-five thousand two hundred fifteen.

18. Six hundred fifty-five thousand eighty-seven.

19. Nine hundred twenty-eight thousand six.

20. Five hundred thousand nine hundred forty-one.

CARL read in the newspaper about the number of millions of automobiles that there are in the United States today.

A million is one thousand thousand. It is written 1,000,000.

It is easier to read large numbers if commas are used to separate the figures into groups of three, counting from the right. Each group, except the one at the left, always has three figures, as in the cases below.

9,162,106	**Nine million one hundred sixty-two thousand one hundred six**
2,002,002	**Two million two thousand two**

In 9,162,106 the first group means 106 ones, the second 162 thousands, and the third 9 millions.

Read these numbers:

1. 57,906.	**4.** 3,921,694.	**7.** 4,027,038.
2. 456,789.	**5.** 5,015,015.	**8.** 7,070,070.
3. 1,000,000.	**6.** 6,600,600.	**9.** 9,009,009.

Read these statements:

1. There are at least 6 cities in the United States which have a population of more than 1,000,000.

2. More than 1,000,000 people now live in each of these cities: Los Angeles, Cleveland, Detroit. More than 2,000,000 people live in Philadelphia, more than 3,000,000 live in Chicago, and more than 6,000,000 live in New York City.

3. In a recent year there were 2,257,755 babies less than 1 yr. old in this country.

4. In 10 yr. the number of automobiles produced in the United States each year increased from 1,583,617 to 4,428,286.

5. An average of 2,357,112 people ride on railroad trains in this country every day.

Write the following numbers in figures:

6. One million five hundred thousand fifty.

7. Three million thirteen thousand sixty-five.

8. Four million nine hundred forty thousand.

9. Seven million seventy thousand seventy.

10. Five million five thousand five hundred.

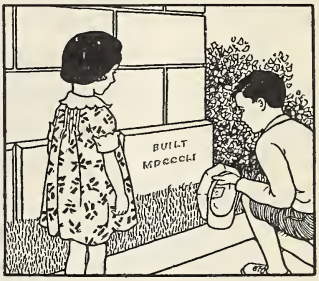
11. One million one thousand one.

12. What is the largest number that you can write with 6 figures? with 7 figures?

HERE are the seven capital letters that are used in writing Roman numerals, and below each letter is given its value in common figures:

I	V	X	L
1	5	10	50

C	D	M
100	500	1000



The tens and hundreds are written this way:

20 = XX	80 = LXXX	500 = D
30 = XXX	90 = XC	600 = DC
40 = XL	100 = C	700 = DCC
50 = L	200 = CC	800 = DCCC
60 = LX	300 = CCC	900 = CM
70 = LXX	400 = CD	1000 = M

Read these statements:

1. XXI = 21. 3. LXVI = 66. 5. CCLX = 260.
2. XLII = 42. 4. XCV = 95. 6. DCXC = 690.

Write in common figures:

7. XXXII. 9. XLI. 11. LXV. 13. CLV.
8. XXXIX. 10. LIII. 12. XCI. 14. MCMXL.
15. Write in Roman numerals: 25, 31, 87, 580, 924.

Discovering Difficulties

See if you can do all these additions:

1. 39 40	2. 80 53	3. 58 19	4. 8 32	5. 26 5
6. 9 0 7	7. 8 4 0	8. 6 7 2	9. 9 7 8	10. 7 5 9
11. 49 64 79	12. 63 40 79	13. 99 57 86	14. 58 22 20	15. 90 70 93
16. 290 357	17. 189 608	18. 76 324	19. $6.01 9.47	20. 996 87

See if you can do all these subtractions:

21. 16 9	22. 13 5	23. 24 6	24. 32 7	25. 54 8
26. 57 20	27. 61 15	28. 53 49	29. 75 57	30. 96 69
31. 600 138	32. 720 380	33. 809 732	34. $9.00 5.96	35. 546 139

See how quickly you can add these:

1.	8	7	6	3	9	3	4	8	6
	9	8	7	8	4	7	6	7	5
2.	7	8	9	7	5	6	5	7	4
	3	5	3	4	3	9	8	7	9
3.	8	9	7	9	5	7	8	9	8
	6	5	6	8	6	9	4	6	2
4.	9	6	7	9	8	5	4	8	9
	7	8	5	9	3	9	7	8	2

See how quickly you can do these subtractions:

5.	13	15	12	15	14	16	12	13	16
	5	6	7	8	9	7	5	6	8
6.	17	15	14	11	12	13	16	14	17
	8	7	5	7	6	8	9	7	9
7.	14	12	15	12	11	10	11	13	11
	6	8	9	4	5	8	3	9	8
8.	13	11	12	14	10	12	13	11	10
	7	6	3	8	4	9	4	9	2

THE eight grades at the Adams School are trying to see which one can save the most money. Here are the amounts that each grade saved for 5 wk.

Find the total amount for each grade:

Grade I	Grade II	Grade III	Grade IV
1. $7.49	2. $11.90	3. $12.39	4. $18.28
8.77	9.03	8.50	13.50
8.84	12.46	9.49	10.81
7.59	5.07	8.26	18.19
9.97	9.59	12.49	13.79

Grade V	Grade VI	Grade VII	Grade VIII
5. $12.57	6. $8.93	7. $14.67	8. $9.36
9.30	9.46	7.28	15.55
7.96	10.57	16.86	13.44
13.03	7.76	7.89	12.53
18.49	14.98	15.67	16.58

9. Which grade saved the most in the 5 wk.?

10. How much more did that grade save than each of the others?

11. How much did the first four grades save in all?

12. How much did the last four grades save in all?

13. How much more was saved by the last four grades than by the first four?

1. Helen lives in Denver. When she went to Chicago to visit her aunt, her father made a little map showing some of the cities through which Helen's train would pass. The numbers show how far each city is from Denver. Read the names of the cities.

2. Helen subtracted to find how many miles there are from Lincoln to Omaha. How many are there?

3. How many miles is it from Lincoln to Des Moines? from Lincoln to Davenport? from Des Moines to Davenport?

4. Helen had breakfast in Omaha and lunch in Des Moines. How many miles did she ride between breakfast and lunch?

5. It took Helen a day to go from Omaha to Chicago. How many miles did she ride that day?

6. When the train was in Davenport, how many miles did Helen have to go to reach Chicago?

A Multiplication Test

See how quickly you can do these multiplications:

1. 2	7	9	3	6	3	5	1	4
6	1	6	5	8	6	4	0	7
2. 5	8	5	4	0	6	8	4	7
2	7	9	3	0	3	0	5	2
3. 8	2	6	4	2	3	7	1	4
8	5	2	4	7	4	4	1	8
4. 7	4	5	6	5	9	2	9	7
8	6	7	9	8	7	8	4	6

See if you can do all these multiplications:

5. 43	6. 51	7. 61	8. 80	9. $0.90
3	6	7	8	6
10. 94	11. 39	12. 76	13. 86	14. $0.89
9	7	9	6	9
15. 915	16. 507	17. 620	18. 982	19. $8.60
5	3	9	3	4
20. 387	21. 978	22. 189	23. 678	24. $7.93
9	7	2	5	8

AMY counted the words on one of the pages in her reader. There were 264 in all. If each of the 298 pages had the same number, how many words would there be in the whole book?

Multiply 264 by 298.

$8 \times 264 = 2112$. Write 2112 with the last 2 under the 8 in 298.

$9 \times 264 = 2376$. Write 2376 with the 6 under the 9 in 298.

$2 \times 264 = 528$. Write 528 with the 8 under the 2 in 298.

264
298
2112
2376
528
78672

Add the partial products as they stand. The answer is 78,672; there would be 78,672 words.

Check by multiplying 298 by 264. If this product is 78,672, the answer is right.

Multiply, and then check your work:

1. 462 by 258.
2. 719 by 354.
3. 391 by 624.
4. 814 by 358.
5. 736 by 853.
6. 925 by 196.
7. 960 by 258.
8. 529 by 385.
9. 870 by 169.
10. 618 by 179.
11. 746 by 619.
12. 754 by 852.
13. 846 by 347.
14. 370 by 734.
15. 927 by 917.
16. 467 by 264.
17. 832 by 582.
18. 925 by 374.
19. 956 by 478.
20. 918 by 697.
21. 947 by 985.
22. 675 by 491.
23. 934 by 387.
24. 789 by 678.

THE principal said that last year the cost of the books used by the 567 pupils in the Central School averaged $2.49 for each pupil. How much did all the books cost?

Multiply $2.49 by 567 as if you were multiplying 249 by 567.

In multiplying dollars and cents, place the decimal point in the product so that the last two figures mean cents and write the sign $.

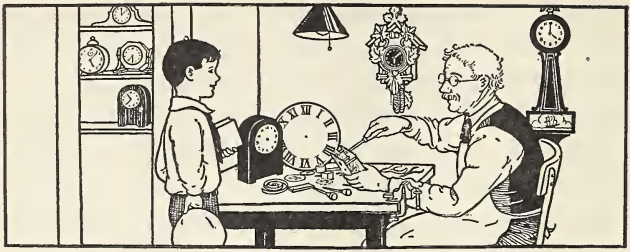
$$\begin{array}{r} \$2.49 \\ 567 \\ \hline 17\,43 \\ 149\,4 \\ 1245 \\ \hline \$1411.83 \end{array}$$

The product is $1411.83. The books cost $1411.83.

Check by multiplying 567 by 249 and seeing if the figures in the product are the same.

Multiply, and then check your work:

1. $1.87	2. $6.58	3. $1.32	4. $3.29	5. $6.54
253	164	461	235	419
6. $2.79	7. $1.48	8. $5.31	9. $7.28	10. $2.36
917	285	879	876	843
11. $7.98	12. $6.45	13. $5.36	14. $6.19	15. $9.45
849	216	523	876	735
16. $9.64	17. $7.49	18. $3.87	19. $8.56	20. $5.12
578	649	875	964	758



1. Old John sells and repairs clocks and watches. Last year he sold 132 alarm clocks at $1.59 each. How much did he get for all the clocks?

2. Old John is mending a clock that strikes the hours. He tells Hal that it strikes 156 times a day. How many times will the clock strike in 365 da.?

3. The cuckoo on the cuckoo clock calls 228 times a day in telling the hours and quarter hours. How many times will the cuckoo call in 182 da.?

4. In striking the hours and quarter hours the banjo clock also strikes 228 times a day. How many times will it strike in a year which has 366 da.?

5. Old John makes $6.75 apiece on one kind of watch that he sells. How much will he make if he sells 112 watches of this kind?

6. The bell on the big clock outside the door strikes 156 times a day. How many times will it strike in the 359 da. from New Year's to Christmas?

AT HIS newspaper stand Harry sells an average of 123 papers a day. How many papers does he sell in 140 da.?

In 140×123 the multiplier ends in 0, and so we can multiply by 14 and annex a zero to the product.

In such cases it is easier if the multiplier is written so that the 0 stands out at the right.

123
140
4920
123
17220

First write 0 below the line under the 0 in 140, so that you will not forget it later.

$4 \times 123 = 492$. Write 492 as shown.

$1 \times 123 = 123$. Write 123 as shown and then add.

The answer means that Harry sold 17,220 papers.

Always put the right-hand figure of each partial product directly under the multiplying figure.

Multiply, and then check your work:

1. 213	2. 329	3. 753	4. 864	5. 734
210	450	630	380	970
6. 816	7. 628	8. 641	9. 985	10. 745
540	940	760	920	450
11. 982	12. 928	13. 467	14. 985	15. 345
670	360	820	870	490

1. Mr. Bangs sold 147 Christmas trees last year for $1.25 apiece. How much did he receive in all?

2. At $175 an acre, how much will a farmer have to pay for 160 acres of land?

3. The rug store bought 128 rugs at $132 apiece. How much did all the rugs cost?

4. Last year the postman on Route Number 4 carried an average of 415 pieces of mail on each of the 311 trips that he made. How many pieces of mail in all did he carry that year?

5. A factory made 123 gasoline engines last month. At $325 apiece, how much were all the engines worth?

6. A mill sold 114 barrels of flour. Each barrel contained 196 lb. How many pounds of flour were there in all?

7. The fruit store bought 128 boxes of apples. There were 120 apples in each box. How many apples were there in all?

8. The Cody ranch had 132 horses. At $125 apiece, how much were all the horses worth?

9. A shoe factory shipped 138 cases of shoes one day. Each case weighed 245 lb. How much did all the cases weigh?

10. Mr. Dale earns $7.25 a day. How much does he earn in 312 working days?

IN MULTIPLYING 747 by 306 there is a long way and a short way. It is better to use the short way and leave out the row of zeros.

In $3 \times 747 = 2241$, the product must be written with the 1 under the 3 in 306.

You will have no trouble if you always remember this:

Long Way	Short Way
747	747
306	306
4482	4482
000	2241
2241	228582
228582	

Put the right-hand figure of each partial product directly under the multiplying figure.

Multiply, and then check your work:

1. 372 by 608.
2. 195 by 409.
3. 687 by 501.
4. 712 by 703.
5. 495 by 109.
6. 536 by 708.
7. 945 by 503.
8. 846 by 602.
9. 538 by 907.
10. 915 by 508.
11. 382 by 409.
12. 436 by 408.
13. 846 by 903.
14. 987 by 708.
15. 896 by 607.
16. 394 by 905.
17. 958 by 706.
18. 837 by 409.
19. 659 by 402.
20. 647 by 907.
21. 820 by 805.
22. 628 by 709.
23. 416 by 306.
24. 473 by 602.
25. 729 by 809.
26. 807 by 405.
27. 735 by 803.

1. Bill's big brother charges $2.75 for washing a car. Last month he washed 119 cars. How much money did he earn in all?

2. Bill's brother also mends tires. He earns an average of $1.75 a day from this part of his work. How much does he earn in 310 da.?

3. At $1.25 an hour, how much does Frank's brother earn in 206 hr.?

4. Tom's uncle sells automobiles. Last year he sold 280 cars at $875 each. For how much in all did he sell the cars?

5. The fare from Lincoln to Omaha is $1.98. One day the ticket agent sold 104 tickets. How much money did he get for all the tickets?

6. Last month the shoe store sold 302 pairs of rubbers at $1.19 a pair. How much money was received for all the rubbers?

7. The length of the trip by boat from Buffalo to Cleveland and return is 369 miles. The captain has made the round trip 112 times. How many miles has he traveled on these trips?

Dividing Dollars and Cents

YOU know how to use short division in dividing numbers representing dollars and cents. The two examples below show how to use long division.

We divide money numbers just as we do other numbers, except that we must put in the decimal point and the sign $.

Remember these four steps in long division:

1. Divide.
2. Multiply.
3. Subtract.
4. Bring down.

With dollars and cents remember this also:

(1)	(2)
\$3.71	\$0.27
21)\$77.91	32)\$8.64
63	64
149	224
147	224
21	
21	

Place the decimal point in the quotient exactly above the decimal point in the dividend.

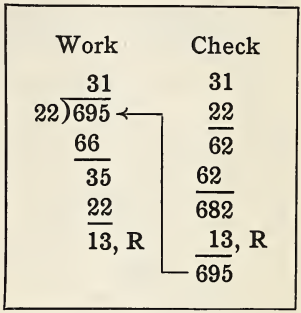
Divide, using long division:

1. \$4.95 ÷ 45.
2. \$9.72 ÷ 81.
3. \$4.62 ÷ 22.
4. \$7.81 ÷ 71.
5. \$1.68 ÷ 14.
6. \$9.94 ÷ 71.
7. \$3.75 ÷ 15.
8. \$9.89 ÷ 23.
9. \$7.75 ÷ 25.
10. \$5.85 ÷ 13.
11. \$27.83 ÷ 23.
12. \$48.99 ÷ 23.
13. \$96.81 ÷ 21.
14. \$99.52 ÷ 32.
15. \$99.96 ÷ 21.

JANE is helping to put 695 books on the shelves in the school book room. If she puts 22 books on each shelf, how many shelves can she fill?

Divide 695 by 22 in the usual way. In subtracting 22 from 35, the remainder is 13. There is nothing more to bring down.

Jane can fill 31 shelves, and there will be 13 books left over.



Check as in short division. Multiply the quotient by the divisor and add the remainder. If the work is correct, the result is the same as the dividend.

Divide, and then check your work:

1. 4899 ÷ 44.
2. 6769 ÷ 32.
3. 2698 ÷ 24.
4. 4788 ÷ 43.
5. 2485 ÷ 22.
6. 1667 ÷ 15.
7. 1789 ÷ 81.
8. 2887 ÷ 23.
9. 3879 ÷ 32.
10. 2675 ÷ 24.
11. 8765 ÷ 71.
12. 4799 ÷ 43.
13. 1189 ÷ 61.
14. 6987 ÷ 33.
15. 1995 ÷ 62.
16. 3789 ÷ 51.
17. 2799 ÷ 71.
18. 6869 ÷ 32.
19. 2879 ÷ 51.
20. 5999 ÷ 54.
21. 2798 ÷ 25.
22. 1449 ÷ 13.
23. 3881 ÷ 32.
24. 4798 ÷ 43.

1. Recently there were 2135 mountain goats and 35 grizzly bears in the state of Washington. There were how many times as many goats as bears?

2. Mr. Farnsworth sold 15 sheep for $315. What was the average price?

3. Mr. Keen is saving $36 a month. In how many months will he have saved enough to buy a car costing $864?

4. The 25 girls in Miss Clark's room bought a flower vase costing $3.75. What was each girl's share of the cost?

Divide, watching the carryings in the multiplications, and then check your work:

5. 864 ÷ 32.
6. 496 ÷ 16.
7. 989 ÷ 23.
8. 684 ÷ 12.
9. 572 ÷ 13.
10. 345 ÷ 15.
11. 330 ÷ 15.
12. 3525 ÷ 75.
13. 8760 ÷ 24.
14. 1435 ÷ 35.
15. 8768 ÷ 32.
16. 1353 ÷ 33.
17. 1834 ÷ 14.
18. 5775 ÷ 25.
19. 8672 ÷ 32.
20. 7775 ÷ 25.
21. 5473 ÷ 13.
22. 1156 ÷ 34.
23. 2565 ÷ 15.
24. 2652 ÷ 52.
25. 5550 ÷ 25.

1. Betty's mother was giving a party. She paid $3.60 for 24 roses. How much did each rose cost?

2. There are 242 children to go to the picnic. How many busses holding 22 children each will it take to carry them?

3. Miss Drake bought the bus tickets for the children in her room. She paid $7.75 for 31 tickets. How much did each ticket cost?

4. Our assembly room has 500 seats in 25 rows of the same length. How many seats are there in each one of the rows?

Divide, watching the subtractions:

5. 726 ÷ 33.
6. 902 ÷ 22.
7. 948 ÷ 12.
8. 416 ÷ 13.
9. 528 ÷ 24.
10. 516 ÷ 43.
11. 429 ÷ 13.
12. 924 ÷ 21.
13. 759 ÷ 33.
14. 504 ÷ 21.
15. 832 ÷ 13.
16. 504 ÷ 42.
17. 1344 ÷ 32.
18. 1333 ÷ 43.
19. 9261 ÷ 21.
20. 1806 ÷ 42.
21. 2024 ÷ 92.
22. 5310 ÷ 45.
23. 5313 ÷ 23.
24. 1056 ÷ 33.
25. 4316 ÷ 13.
26. 1764 ÷ 84.
27. 1533 ÷ 73.
28. 3864 ÷ 92.
29. 3025 ÷ 25.
30. 6144 ÷ 64.
31. 7392 ÷ 32.
32. 5445 ÷ 45.
33. 8275 ÷ 25.
34. 7383 ÷ 23.
35. 3066 ÷ 73.
36. 4042 ÷ 94.
37. 3528 ÷ 84.

1. The Nature Club has 14 members. Last week they counted 224 robins. What was the average number for each member?

2. In 13 da. they found 156 kinds of flowers. What was the average number each day?

3. They pasted pictures of 208 birds in the club scrapbook. They used 13 pages. How many pictures did this average to a page?

4. The club wants to buy some bird books that cost $5.18. What will be the share of this cost for each of the 14 members?

Divide, watching both the subtractions and the multiplications:

5. $612 \div 34$.	14. $8425 \div 25$.	23. $6154 \div 34$.
6. $924 \div 14$.	15. $1536 \div 24$.	24. $8275 \div 25$.
7. $225 \div 15$.	16. $5265 \div 15$.	25. $6174 \div 14$.
8. $828 \div 23$.	17. $6744 \div 24$.	26. $1914 \div 22$.
9. $616 \div 14$.	18. $7293 \div 13$.	27. $6188 \div 34$.
10. $525 \div 15$.	19. $2265 \div 15$.	28. $2376 \div 12$.
11. $672 \div 24$.	20. $8172 \div 12$.	29. $6768 \div 24$.
12. $576 \div 12$.	21. $9254 \div 14$.	30. $5295 \div 15$.
13. $455 \div 13$.	22. $2364 \div 12$.	31. $1935 \div 43$.

1. From 43 maple trees Mr. Cook got 1806 qt. of sap. How many quarts did he get from each tree?

2. It takes 53 qt. of sap to make 1 qt. of maple sirup. How many quarts of sirup will 1802 qt. of sap make?

3. Mr. Cook sold 21 qt. of sirup for $12.39. How much was this a quart?

4. A gallon of sirup weighs 11 lb. How many gallons are there in 539 lb. of sirup?

5. Mr. Rice has 528 strawberry plants to set out. How many plants should he put in each of 24 rows?

6. Ida paid $3.75 for 25 packages of flower seeds. How much, on the average, did each one cost?

7. At the pansy farm they sold 15 doz. plants for $5.25. How much did they charge for 1 doz.?

8. Henry planted 768 hills of corn in 24 rows. How many hills were there to each row?

9. Make up two other problems about spring work.

1. Last summer the Boys' Band gave 16 concerts. They played 1440 min. in all. How many minutes did the boys average for each concert?

2. In 14 da. Robert practiced 630 min. How many minutes a day did this average?

3. The suits for the 30 boys in the band cost $420. How much did each suit cost?

Divide and check, remembering to add the remainder, if there is one, when you check:

4. $537 \div 13$.	14. $3864 \div 92$.	24. $9079 \div 61$.
5. $468 \div 42$.	15. $9078 \div 34$.	25. $1982 \div 83$.
6. $504 \div 21$.	16. $4896 \div 51$.	26. $2185 \div 95$.
7. $949 \div 73$.	17. $2883 \div 93$.	27. $7192 \div 31$.
8. $996 \div 83$.	18. $2100 \div 84$.	28. $1850 \div 74$.
9. $609 \div 21$.	19. $1196 \div 52$.	29. $4398 \div 54$.
10. $416 \div 32$.	20. $8625 \div 75$.	30. $2024 \div 92$.
11. $882 \div 63$.	21. $2350 \div 94$.	31. $2232 \div 72$.
12. $704 \div 44$.	22. $5310 \div 45$.	32. $1600 \div 64$.
13. $782 \div 23$.	23. $2184 \div 91$.	33. $4989 \div 43$.

THE school board gave Mr. Green, the coal dealer, an order for $1560 worth of coal. At $13 a ton, how many tons were ordered?

Divide 1560 by 13 in the usual way until you come to the step 26 – 26.

There is no remainder, **but there is still a zero in the dividend.** Bring down this zero.

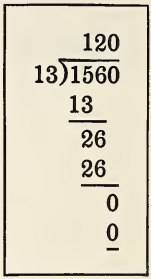
$0 \div 13 = 0$. Write 0 after the 12 in the quotient.

$0 \times 13 = 0$. Write 0 under 0.

Subtract. There is no remainder.

The quotient is 120. The school board ordered 120 T. of coal.

Check by multiplying 120 by 13.



Divide, and then check your work:

1. 7650 ÷ 85.
2. 5120 ÷ 64.
3. 6750 ÷ 75.
4. 6580 ÷ 94.
5. 5950 ÷ 85.
6. 8550 ÷ 95.
7. 6720 ÷ 84.
8. 4950 ÷ 55.
9. 5250 ÷ 75.
10. 5520 ÷ 92.
11. 5670 ÷ 81.
12. 6510 ÷ 93.
13. 7380 ÷ 82.
14. 6660 ÷ 74.
15. 7280 ÷ 91.
16. 5840 ÷ 73.
17. 47,250 ÷ 63.
18. 13,440 ÷ 84.
19. 28,520 ÷ 62.
20. 17,250 ÷ 75.
21. 24,840 ÷ 92.
22. 38,540 ÷ 82.
23. 29,680 ÷ 53.
24. 29,050 ÷ 83.

1. At the school picnic there were 100 sandwiches for 30 children. How many sandwiches were there for each child, and how many were left over?

2. The boys had 160 pennies to buy ice-cream cones. At 50¢ a dozen, how many dozen did they buy, and how many pennies did they have left?

3. The picnic cost $9.07. How much was this for each of the 30 children, and how many cents remained to be paid?

Divide, remembering the zero before the remainder:

4. $432 \div 21$.
5. $365 \div 35$.
6. $967 \div 32$.
7. $947 \div 91$.
8. $635 \div 62$.
9. $1924 \div 63$.
10. $2109 \div 30$.
11. $2785 \div 92$.
12. $2497 \div 83$.
13. $2578 \div 64$.
14. $6580 \div 73$.
15. $6682 \div 95$.
16. $5897 \div 84$.
17. $6009 \div 75$.
18. $7395 \div 82$.

HERE are two examples in which you should watch the zeros in the quotient. You will have no trouble if you remember this:

Write a figure in the quotient every time that you bring down a figure from the number divided.

In $3638 \div 34$ begin in the usual way. After the step $36 - 34 = 2$, bring down the 3 from 3638, making 23.

There are no 34's in 23. Write 0 in the quotient.

Bring down the 8 from 3638, making 238.

(1)	(2)
107	2006
34)3638	43)86258
34	86
238	258
238	258

There are seven 3's in 23. Write 7 in the quotient after the 0.

$7 \times 34 = 238$ and $238 - 238 = 0$.

The quotient is 107. Check by multiplication.

In dividing 86,258 by 43 bring down the 2 after completing the step $86 - 86$.

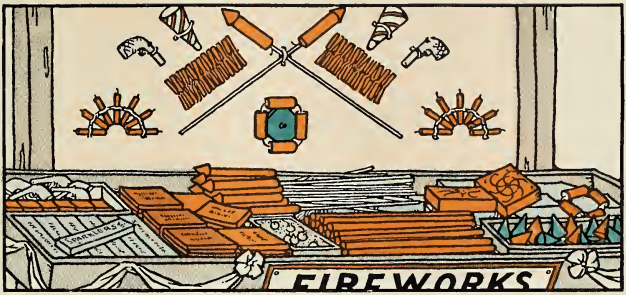
There are no 43's in 2. Write 0 in the quotient.

Bring down the 5, making 25. There are no 43's in 25. Write a second 0 in the quotient.

Bring down the 8, making 258. There are six 4's in 25. Write 6 in the quotient.

$6 \times 43 = 258$ and $258 - 258 = 0$.

The quotient is 2006. Check by multiplication.



1. The fireworks store paid $47.25 for 45 big pin wheels. How much did each one cost?

2. Yesterday they sold 384 packages of small firecrackers. This was 12 times the number of big ones that they sold. How many packages of big firecrackers did they sell?

Divide, and then check your work:

3. 704 ÷ 44.
4. 805 ÷ 35.
5. 980 ÷ 70.
6. 800 ÷ 32.
7. 208 ÷ 13.
8. 540 ÷ 45.
9. 705 ÷ 47.
10. 948 ÷ 79.
11. 3315 ÷ 65.
12. 3624 ÷ 12.
13. 9595 ÷ 95.
14. 7446 ÷ 73.
15. 8484 ÷ 84.
16. 9579 ÷ 93.
17. 6510 ÷ 62.
18. 7006 ÷ 31.
19. 33,947 ÷ 83.
20. 65,228 ÷ 92.
21. 67,192 ÷ 74.
22. 18,605 ÷ 61.
23. 26,576 ÷ 44.
24. 62,070 ÷ 30.
25. 92,828 ÷ 92.
26. 90,090 ÷ 45.

Give the answers quickly, watching the signs:

1.	8	3	6	2	7	5	11	9
	+8	×0	+9	×8	+2	+8	−9	×7
2.	5	3	9	10	7	15	7	7
	+9	×8	+1	−6	+9	−8	×1	+8
3.	7	6	18	6	15	9	0	9
	×9	+3	−9	+8	−7	+2	×6	+8
4.	6	5	2	5	6	14	9	9
	+4	×7	+9	×0	+2	−6	×3	+4
5.	14	2	14	7	9	4	7	8
	−7	×9	−8	×6	+9	×8	+3	×8
6.	9	13	7	11	9	3	17	8
	×8	−8	×7	−8	×6	×7	−9	×6
7.	6	2	16	9	8	6	8	13
	+7	×0	−7	×9	+7	×4	+9	−7
8.	8	9	8	9	11	9	15	9
	+2	+3	×7	+5	−7	×4	−6	+7
9.	8	0	16	7	13	9	14	4
	×9	×7	−9	×8	−6	×1	−5	×7

How to Solve Problems

BEFORE you solve a problem be sure that you know what it means. You may have to read it more than once. Then ask yourself these questions:

1. What am I to find?
2. What numbers shall I use?
3. Shall I add, subtract, multiply, or divide?
4. About how large will the answer be?

Then solve the problem and check the answer.

Tell whether you would add, subtract, multiply, or divide in each of these problems:

1. Jane has —— cents. Clara has —— cents. How many cents have they both?

2. Ben has —— marbles. Hal has —— marbles. How many more (or less) has Ben than Hal?

3. Arthur had —— stamps. He gave away —— of them. How many stamps did he have left?

4. A candy bar costs —— cents. How many cents do —— candy bars cost?

5. Alice paid —— cents for —— pencils. How many cents did each pencil cost?

6. Make up numbers to fill the blanks in Exs. 1 to 5 and then solve the problems.

1. Ned wants an Indian suit that costs \$5. He has \$3. How do you find how much more money he needs to buy the suit? How much is it?

2. Jack had a quarter. He paid 5¢ for candy. How do you find how much change Jack got? How much was it?

3. Helen pays 20¢ for a set of toy dishes and 10¢ for a doll's hat. How do you find how much she pays for both? How much is it?

4. Mary was sent to the store to buy 6 apples. They cost 4¢ apiece. How do you find how much Mary paid for them? How much was it?

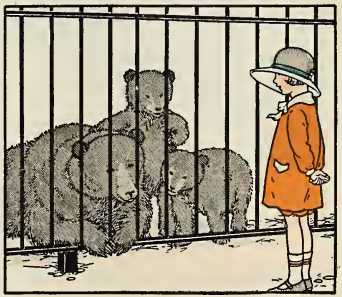
5. The fruit stand is selling bananas at 6 for 18¢. At this rate, how do you find how much Nell will have to pay for 1 banana? How much is it?

6. Ben wants a pin wheel that costs 13¢. He has only 9¢. How do you find how much more money Ben needs? How much is it?

7. Paul pays 20¢ for 4 arrows. How do you find the price of each arrow? How much is it?

8. Make up four problems like Exs. 1 to 7, and tell how to solve each one.

1. Grace likes to watch the twin baby bears at the park. Each one weighs 35 lb. How much do both the baby bears weigh?



2. Nellie, the mother bear, eats 25 lb. of bread a day. How many pounds of bread will she eat in 7 da.?

3. Each week the keeper gives each big bear 155 lb. of beef and each lion 84 lb. How much more beef does he give a bear than a lion?

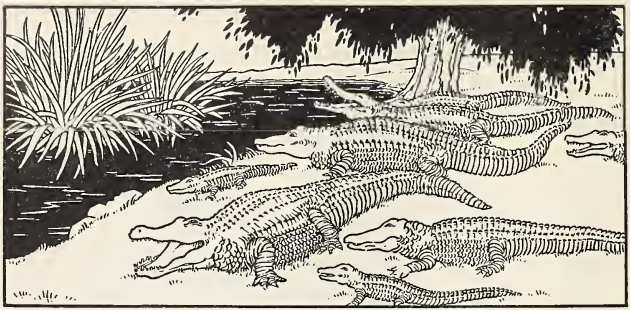
4. It costs $1.09 a day to feed Andy, the biggest lion. How much does his food cost for 9 da.?

5. They give the big white bear fresh fish every day. In 7 da. he had 35 lb. of fish. How many pounds, on the average, did he have each day?

6. Andy weighs 820 lb. and Minnie, the smallest lion, weighs 615 lb. How much more does Andy weigh than Minnie?

7. The keeper said that the 3 brown bears cost $250 apiece. How much did they all cost?

8. Jumbo, the big hippopotamus, ate 450 lb. of cornstalks in 3 da. If he ate the same amount each day, how many pounds a day did he eat?



1. Queenie, the big alligator, is 200 yr. old. Dixie is 13 yr. old. How much older is Queenie than Dixie?

2. Queenie is 192 in. long. She is 4 times as long as Dixie. How long is Dixie?

3. Queenie cost $350 and Dixie cost $99. How much more did Queenie cost than Dixie?

4. Topsy, the baby alligator, grew 40 in. in 5 yr. How much, on the average, did she grow each year?

5. Jip was 115 in. long, but Queenie bit 6 in. off his tail. How long is Jip now?

6. The keeper showed Tom 3 alligators that were worth $225. How much was each alligator worth?

7. There were 35 alligators in one pen and 18 in another. How many were there in both pens?

8. The keeper said that the 35 alligators had laid 140 eggs. What was the average number apiece?

There are no numbers in these problems. You are to tell how you would solve them if you knew the numbers. Make your answers as simple as you can:

1. Lucy wants to buy several Christmas presents. If they each cost a different amount, how much money does Lucy need to buy them?

2. Fred knows how far their car will go on a gallon of gasoline and how many gallons the tank holds. How far can they go when the tank is full?

3. A farmer weighed his wagon when it was full of corn. He knows how much the empty wagon weighs. How many pounds of corn were there in the load?

4. Joe spent his allowance for a box of pencils. He counted the number in the box. How much did he pay for each pencil?

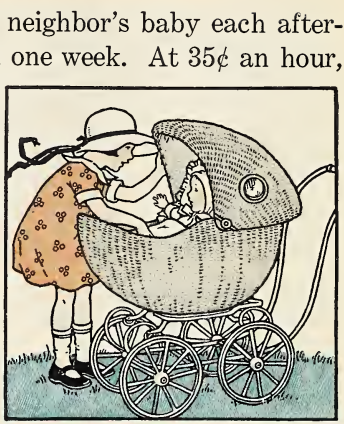
5. Tom asked the price of a sled that he wanted, but he did not have money enough to buy it. How much more money did he need?

6. Each room in the Park School has the same number of pupils. How many pupils are there in all?

7. After counting the money in her bank, Betty took some of it to buy a present for her mother. How much did she have left in the bank?

8. Carl is saving his allowance each week to buy a bicycle. In how many weeks can he buy it?

1. Jean took care of a neighbor's baby each afternoon. She worked 10 hr. one week. At 35¢ an hour, how much money did she earn that week?



2. Ida's mother paid her 25¢ a week for making the beds. How much did Ida earn in 12 wk.?

3. Harry earned $2.25 by picking 75 qt. of cherries. How much was he paid a quart?

4. Dick had a garden. He got $1.85 for the carrots that he sold, $3.25 for tomatoes, $2.50 for corn, and $1.75 for beans. How much did he get for all the vegetables that he sold?

5. In 12 wk. Tom earned $108 by taking care of the chickens on a farm. How much was this a week?

6. Lee and Joe worked in their uncle's office. During vacation Lee saved $38.50 and Joe saved $29. How much more did Lee save than Joe?

7. Alice used to read to an old lady for 25¢ an hour. One week she read 14 hr. How much money did she earn that week?

8. In 11 wk. Ned earned $2.75 by taking care of the lawn. How much was this a week?

A Multiplication Test

See how quickly you can do these multiplications:

1.	9	6	8	4	5	4	8	0	3
	5	7	0	6	8	9	7	6	5
2.	2	6	4	6	7	5	6	1	5
	8	9	8	1	0	5	8	7	9
3.	7	5	8	7	3	6	3	7	6
	9	4	1	6	9	5	6	8	6
4.	3	5	8	0	9	7	5	5	8
	8	0	8	0	8	4	6	1	6
5.	7	9	8	9	5	3	1	2	7
	5	2	5	6	7	0	8	9	7

See if you can do all these multiplications easily:

6. 59	7. 70	8. 907	9. 340	10. 519
9	3	5	7	9
11. 87	12. 96	13. 180	14. 608	15. 394
6	7	9	2	7
16. 98	17. 93	18. 203	19. 796	20. 509
70	39	605	487	160

1. The school library has 27 new books. If there is an average of 48 pictures in each book, how many pictures are there in all?

2. There are 64 boys at the Boy-Scout camp. If each boy pays 75¢ toward buying a boat, how much money will they have?

3. The school paper costs $1.25 a year. There are 257 people who take the paper. How much money do they pay in all?

4. In the Highland School there are 689 children. If each child uses 205 sheets of paper in a year, how many sheets are needed in all?

Multiply, and then check your work:

5. 16×153.
6. 27×426.
7. 26×908.
8. 27×359.
9. 16×897.
10. 18×826.
11. 96×376.
12. 49×829.
13. 87×849.
14. 726×167.
15. 490×190.
16. 308×745.
17. 493×138.
18. 807×803.
19. 602×629.
20. 456×896.
21. 809×769.
22. 385×953.
23. 276×853.
24. 358×627.
25. 105×809.
26. 479×765.
27. 917×293.
28. 205×431.
29. 649×457.
30. 479×984.
31. 538×401.

DID you ever try to multiply by beginning at the left? It is an easy way to multiply, particularly when you want to "multiply in your head."

13	← To multiply these →	37
7		8
70 + 21	← Think this →	240 + 56
91	← The product is →	296

You can see that 13 is the same as $10 + 3$, and so 7×13 is the sum of 7×10 and 7×3.

1. Multiply each of these numbers mentally by 2, then by 3, then by 4, and so on to 9:

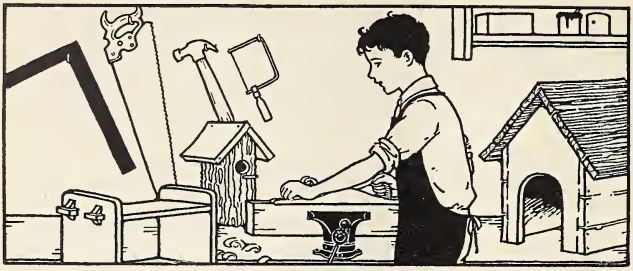
13	18	15	17	14	16	22	53
21	23	32	63	54	72	83	92

2. Write a multiplication table of 13's, beginning $2 \times 13 = 26$, $3 \times 13 = 39$, and so on to 9×13.

3. Write and practice saying a table of 14's; of 15's; of 16's; of 17's; of 18's.

Multiply mentally as quickly as you can:

4. 4×93.	7. 3×79.	10. 6×59.	13. 4×87.
5. 5×84.	8. 6×94.	11. 9×48.	14. 7×48.
6. 7×56.	9. 8×97.	12. 5×79.	15. 9×98.



1. Carl used a board 62 in. long in making the roof of his dog house and one 142 in. long for the sides. How many inches did he use in all? How many feet?

2. For his bookrack Peter needed a board 58 in. long for the sides and one 62 in. long for the shelves. How many inches did he need? How many feet?

3. Joe paid \$1.29 for boards, 7¢ for sandpaper, and 13¢ for varnish. How much did he pay in all?

4. Roy has a board 92 in. long. He wants to make 4 shelves for a bookcase. How long can each shelf be?

5. Bert made a house for his rabbits. He paid \$1.35 for boards, 30¢ for paint, and 8¢ for nails. How much did these things cost in all?

6. Carl made 3 bird houses. They cost him \$1.08 in all. How much did each one cost?

7. The paint and brushes to paint their hut cost 5 boys \$1.30. What was each boy's share?

Give the quotients and remainders:

1.	9)20	7)66	8)23	9)53	6)40
2.	8)51	9)60	6)56	8)68	7)39
3.	7)47	8)31	8)44	9)32	8)39
4.	5)38	9)23	7)27	8)52	9)41
5.	6)29	8)47	7)22	8)22	6)38
6.	9)68	8)29	9)31	6)23	7)24
7.	3)25	8)49	8)46	7)59	9)42
8.	6)45	8)27	9)62	6)22	7)52

See how quickly you can do these divisions:

9.	8)37	7)41	9)39	7)20	6)59
10.	9)52	6)46	8)61	9)79	7)33
11.	7)38	9)44	7)43	6)53	8)67
12.	9)33	6)41	9)59	7)61	9)51
13.	9)25	7)32	9)40	8)54	6)33
14.	7)51	9)43	6)21	9)30	7)40
15.	9)24	7)44	8)76	9)61	8)78
16.	9)35	8)62	9)34	7)48	6)35

IN LONG division it frequently happens that the right quotient figure is not the one that you might expect it to be. Study the work below carefully.

Wrong Beginning	Right Beginning
$\begin{array}{r} 4 \\ 23\overline{)805} \\ 92 \\ \hline \end{array}$	$\begin{array}{r} 3 \\ 23\overline{)805} \\ 69 \\ \hline 11 \end{array}$

$8 \div 2 = 4$. Let us try 4 as the first quotient figure.

$4 \times 23 = 92$. You cannot subtract 92 from 80.

Try 3, the next smaller figure.

$3 \times 23 = 69$ and $80 - 69 = 11$. The remainder is smaller than 23, and so 3 is the right figure.

Remember these two questions in long division:

1. Is the product small enough to subtract?

2. Is the remainder smaller than the divisor?

Find the first quotient figure in each of these cases:

1. $25\overline{)825}$	5. $24\overline{)816}$	9. $24\overline{)1056}$	13. $43\overline{)2494}$
2. $22\overline{)616}$	6. $22\overline{)814}$	10. $35\overline{)2170}$	14. $64\overline{)1856}$
3. $23\overline{)828}$	7. $34\overline{)918}$	11. $53\overline{)2014}$	15. $54\overline{)2052}$
4. $32\overline{)608}$	8. $33\overline{)924}$	12. $44\overline{)1232}$	16. $85\overline{)1615}$

YOU have just seen that in long division the first quotient figure is not always what you expect it to be. This is also true of the second or any other figure.

Study this example. It looks as if the first quotient figure might be 5, but the right figure is 4.

In the same way, it looks as if the second figure might be 9, but the right figure is 8.

```
  48
35)1680
 140
 ---
 280
 280
 ---
```

You will soon learn to estimate the right figure, but you will have to watch carefully.

If you cannot subtract, the quotient figure is too large. Try the next smaller figure.

If the remainder is equal to or greater than the divisor, try the next larger quotient figure.

Divide, watching the quotient figures carefully:

1. 120 ÷ 24.
2. 161 ÷ 23.
3. 144 ÷ 24.
4. 272 ÷ 34.
5. 168 ÷ 24.
6. 360 ÷ 45.
7. 184 ÷ 23.
8. 864 ÷ 24.
9. 475 ÷ 25.
10. 600 ÷ 24.
11. 855 ÷ 45.
12. 621 ÷ 23.
13. 918 ÷ 34.
14. 945 ÷ 35.
15. 1824 ÷ 24.
16. 1680 ÷ 35.
17. 1564 ÷ 23.
18. 1260 ÷ 35.
19. 2610 ÷ 45.
20. 1320 ÷ 24.
21. 3105 ÷ 45.

WHEN the divisor ends in 6 or 7, the quotient figure is very likely to be smaller than you expect it to be.

In dividing 3779 by 56, if you think "5's in 37 are 7" and "$7 \times 56 = 392$," you will see that 7 is too large for the first quotient figure.

Example	Check
67	67
56)3779	56
336	402
419	335
392	3752
27, R	27, R
	3779

Try 6. Why is 6 right?

Begin again with 419.

How many 5's in 41?

How much is 8×56? Is 8 the right quotient figure?

What do you do next? Why is 7 the right figure?

How do you check your work?

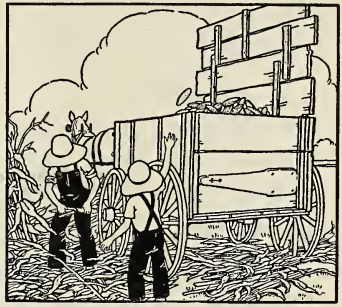
Divide, and then check your work:

1. $832 \div 96$.
2. $351 \div 27$.
3. $782 \div 46$.
4. $962 \div 37$.
5. $913 \div 56$.
6. $583 \div 26$.
7. $905 \div 17$.
8. $885 \div 46$.
9. $962 \div 26$.
10. $912 \div 26$.
11. $849 \div 36$.
12. $737 \div 96$.
13. $3395 \div 57$.
14. $1682 \div 96$.
15. $2802 \div 77$.
16. $6900 \div 96$.
17. $1355 \div 87$.
18. $3885 \div 46$.
19. $3660 \div 56$.
20. $1398 \div 27$.
21. $1420 \div 36$.
22. $6853 \div 87$.
23. $4016 \div 86$.
24. $3184 \div 97$.

1. John husked 2457 bu. of corn in 27 da. How many bushels, on the average, did he husk each day?

2. The other boy husked 1440 bu. of corn in 36 da. What was his average per day?

3. Mr. Gale planted 67 acres of corn. He raised 2345 bu. How many bushels to the acre did this average?



Divide and then check, remembering to add the remainder each time:

4. 359 ÷ 37.
5. 852 ÷ 36.
6. 971 ÷ 37.
7. 890 ÷ 46.
8. 905 ÷ 76.
9. 915 ÷ 35.
10. 362 ÷ 27.
11. 875 ÷ 26.
12. 988 ÷ 34.
13. 590 ÷ 26.
14. 729 ÷ 25.
15. 3321 ÷ 57.
16. 4545 ÷ 66.
17. 1691 ÷ 96.
18. 7080 ÷ 74.
19. 3399 ÷ 57.
20. 3891 ÷ 46.
21. 2811 ÷ 77.
22. 3675 ÷ 56.
23. 7289 ÷ 95.
24. 1370 ÷ 87.
25. 3632 ÷ 94.
26. 4392 ÷ 76.
27. 1100 ÷ 67.
28. 1407 ÷ 36.
29. 3190 ÷ 57.
30. 4025 ÷ 86.
31. 7299 ÷ 74.
32. 6703 ÷ 96.
33. 1735 ÷ 87.
34. 6440 ÷ 84.
35. 2832 ÷ 77.
36. 2448 ÷ 85.

THIS page will help you to find out how well you can solve problems. After you have finished, mark your paper according to the scale in the table.

Correct	Mark
9 or 10	Excellent
7 or 8	Good
5 or 6	Fair
0 to 4	Poor

1. There are 21 girls and 16 boys in our room. There are how many more girls than boys?

2. At \$6 a week, how much does Joe earn in 4 wk.?

3. John has 6 hens. They have laid 48 eggs. What is the average number of eggs for each hen?

4. Tom's new coat was marked \$12, but he bought it for \$3 less than this. How much did he pay?

5. Lucy has 2 dimes and 3 pennies. How many cents' worth of candy can she buy?

6. At \$4 each, how much are 8 turkeys worth?

7. Jim spent 35¢ for an arithmetic notebook and 15¢ for paper. How much did he spend in all?

8. There are 33 pupils in the fourth grade and 37 in the fifth. How many pupils are there in all?

9. How many 5-cent bags of pop corn can Grace buy for a quarter?

10. John sold 3 doz. eggs at 40¢ a dozen. How much money did he get for them?

Give the answers orally:

I.	1. $61 + 28$.	5. 3×70.	9. $58 + 30$.
	2. $35 + 52$.	6. 6×20.	10. $69 - 15$.
	3. $89 - 24$.	7. $90 \div 9$.	11. 20×4.
	4. $97 - 31$.	8. $160 \div 4$.	12. $420 \div 7$.
II.	1. $26 + 9$.	5. 4×90.	9. $36 + 9$.
	2. $75 + 8$.	6. 80×6.	10. $53 - 7$.
	3. $81 - 9$.	7. $150 \div 5$.	11. 60×9.
	4. $62 - 7$.	8. $210 \div 7$.	12. $560 \div 7$.
III.	1. $65 + 17$.	5. 9×80.	9. $15 + 19$.
	2. $48 + 43$.	6. 8×70.	10. $30 - 23$.
	3. $70 - 61$.	7. $360 \div 9$.	11. 7×90.
	4. $33 - 14$.	8. $640 \div 8$.	12. $540 \div 6$.
IV.	1. $25 + 16$.	5. 30×8.	9. $27 + 15$.
	2. $48 + 12$.	6. 9×60.	10. $34 - 17$.
	3. $30 - 15$.	7. $350 \div 7$.	11. 7×70.
	4. $41 - 29$.	8. $720 \div 8$.	12. $480 \div 8$.
V.	1. $24 + 17$.	5. 8×50.	9. $38 + 12$.
	2. $36 + 15$.	6. 7×60.	10. $40 - 15$.
	3. $50 - 35$.	7. $540 \div 9$.	11. 90×8.
	4. $38 - 19$.	8. $560 \div 8$.	12. $630 \div 7$.

THE two examples on this page show the best way to find quotient figures when the divisor ends in 8 or 9. It will help you to save time in your work.

1. Divide 1287 by 29.

Since 29 is almost 30, you should think "12 ÷ 3 = 4."

In this case we say that we use 3 as the **trial divisor.**

$4 \times 29 = 116$ and $128 - 116 = 12$.

The 12 is smaller than 29, and so the first quotient figure is 4.

$$\begin{array}{r} 4 \\ 29\overline{)1287} \\ \underline{116} \\ 12 \end{array}$$

2. Divide 2062 by 38.

Since 38 is almost 40, you should use 4 as the trial divisor.

Think "20 ÷ 4 = 5."

$5 \times 38 = 190$ and $206 - 190 = 16$.

How can you tell that 5 is the right figure to use?

$$\begin{array}{r} 5 \\ 38\overline{)2062} \\ \underline{190} \\ 16 \end{array}$$

With two-figure divisors ending in 8 or 9, add 1 to the first figure to make the trial divisor.

Find the first quotient figure in each of these cases:

1. $19\overline{)526}$	4. $29\overline{)955}$	7. $48\overline{)1275}$	10. $89\overline{)4307}$
2. $18\overline{)460}$	5. $28\overline{)688}$	8. $79\overline{)4912}$	11. $99\overline{)4865}$
3. $39\overline{)921}$	6. $39\overline{)672}$	9. $68\overline{)5672}$	12. $88\overline{)1690}$

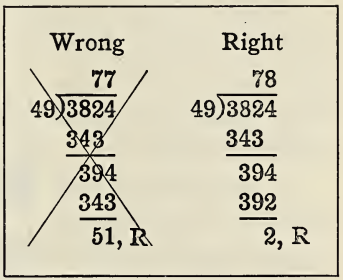
WITH two-figure divisors ending in 8 or 9, you have seen that you can **add 1 to the first figure to make the trial divisor.**

Sometimes this makes a quotient figure too small, as in $3824 \div 49$.

Think of 49 as 50.

The first quotient figure is 7, and the first remainder is 39.

Bring down the 4. If you think "5's in 39 are 7" and "$7 \times 49 = 343$," the remainder is 51.



This is larger than 49, and so 7 is too small for the second quotient figure. Try 8.

$8 \times 49 = 392$ and $394 - 392 = 2$.

The right answer is "78, and 2 remainder."

If the remainder is equal to or greater than the divisor, try the next larger quotient figure.

Divide, and then check your work:

1. $844 \div 29$.
2. $952 \div 38$.
3. $495 \div 19$.
4. $991 \div 38$.
5. $8476 \div 29$.
6. $2439 \div 29$.
7. $4355 \div 58$.
8. $1869 \div 49$.
9. $7348 \div 79$.
10. $2760 \div 69$.
11. $2018 \div 38$.
12. $1678 \div 88$.

1. Mrs. Carter owns the hat shop on High Street. She paid \$63.84 for 84 girls' hats. What was the average price that she paid for each one?

2. Mrs. Carter ordered 348 hats. They came packed in 29 boxes. What was the average number to a box?

3. In 28 wk. she sold 896 hats. What was the average number a week?

4. Mrs. Carter sold 28 hats for \$27.44. What was the average price at which she sold each one?

Divide, and then check your work:

5. $927 \div 38$.	14. $2991 \div 38$.	23. $5250 \div 69$.
6. $518 \div 39$.	15. $1657 \div 29$.	24. $4578 \div 68$.
7. $990 \div 28$.	16. $1849 \div 59$.	25. $2597 \div 89$.
8. $998 \div 18$.	17. $3489 \div 49$.	26. $7143 \div 98$.
9. $809 \div 48$.	18. $2858 \div 59$.	27. $4653 \div 69$.
10. $563 \div 19$.	19. $4299 \div 48$.	28. $5259 \div 59$.
11. $869 \div 49$.	20. $4287 \div 89$.	29. $5398 \div 78$.
12. $938 \div 38$.	21. $4940 \div 59$.	30. $2367 \div 49$.
13. $991 \div 29$.	22. $2857 \div 48$.	31. $4963 \div 58$.

1. Mr. Tanner has a new car. In the last 37 da. he drove 1295 miles. How many miles did he average a day?

2. On one trip Mr. Tanner drove 390 miles on 26 gal. of gasoline. How many miles did he average to the gallon?

3. It will cost him $700 to build a garage for his car. To save this amount in 28 wk., how much will he have to save each week?

Divide, and then check your work:

4. $676 \div 26$.
5. $112 \div 28$.
6. $646 \div 38$.
7. $729 \div 27$.
8. $812 \div 28$.
9. $832 \div 26$.
10. $912 \div 38$.
11. $116 \div 29$.
12. $806 \div 26$.
13. $975 \div 39$.
14. $868 \div 27$.
15. $789 \div 46$.
16. $9203 \div 76$.
17. $9279 \div 56$.
18. $9891 \div 37$.
19. $4090 \div 76$.
20. $3899 \div 46$.
21. $4945 \div 59$.
22. $2879 \div 48$.
23. $4782 \div 69$.
24. $2877 \div 59$.
25. $3347 \div 58$.
26. $1428 \div 39$.
27. $2815 \div 77$.
28. $4787 \div 69$.
29. $3899 \div 46$.
30. $3636 \div 58$.
31. $6909 \div 96$.
32. $2146 \div 58$.
33. $2773 \div 47$.
34. $5399 \div 69$.
35. $4959 \div 58$.
36. $4299 \div 89$.
37. $5325 \div 58$.
38. $4648 \div 69$.
39. $5248 \div 69$.

YOU have already learned how to divide when there are zeros in the quotient. Some boys and girls have trouble with these zeros, but it is usually because they forget to write them in the quotient.

Study this example carefully.

How do you get the first zero in the quotient? the second?

How do you check the answer?

You should remember this:

```
    1005
49)49245
   49
   ---
    245
    245
    ---
```

Always write a figure in the quotient for every figure that you bring down.

Divide, and then check your work:

1. 32)96,256
2. 49)98,343
3. 34)68,170
4. 67)13,936
5. 85)26,265
6. 94)38,164
7. 79)55,932
8. 86)43,258
9. 95)67,355
10. 78)62,712
11. 63)57,015
12. 92)74,428
13. 89)53,845
14. 57)51,699
15. 48)29,184
16. 21)84,189
17. 31)62,186
18. 42)84,378
19. 35)35,210
20. 23)69,184
21. 97)97,582
22. 86)86,774
23. 59)59,472
24. 78)78,546
25. 61)61,549
26. 45)90,405
27. 27)81,243

WHEN you try a quotient figure, you should multiply without pencil or paper. The easy way to multiply that you learned on page 407 will help you in dividing 754 by 13.

If you try 6 for the first quotient figure, this is what you should think:

"$6 \times 13 = 60 + 18$, or 78;
78 is more than 75;
6 is too large;
Try 5."

$$\begin{array}{r} 58 \\ 13\overline{)754} \\ \underline{65} \\ 104 \\ \underline{104} \end{array}$$

$5 \times 13 = 65$ and $75 - 65 = 10$. The first quotient figure is 5. Now finish the example.

Multiply the easy way in examples like this. When 19 is the divisor, first think of 19 as 20.

Divide, and then check your work:

1. $364 \div 13$.
2. $585 \div 15$.
3. $784 \div 14$.
4. $400 \div 16$.
5. $392 \div 14$.
6. $507 \div 13$.
7. $705 \div 15$.
8. $650 \div 13$.
9. $486 \div 18$.
10. $576 \div 16$.
11. $980 \div 14$.
12. $728 \div 13$.
13. $546 \div 14$.
14. $304 \div 16$.
15. $867 \div 17$.
16. $513 \div 19$.
17. $949 \div 13$.
18. $928 \div 16$.
19. $476 \div 17$.
20. $702 \div 18$.
21. $611 \div 13$.
22. $684 \div 19$.
23. $658 \div 14$.
24. $234 \div 18$.

1. The Clover-Leaf Club had an "April-Fool" party. They used 360 in. of paper for caps. Each cap took 15 in. How many caps did they make?

2. They had 336 pieces of candy for the 24 boys and girls. How many pieces could each one have?

3. The party cost the club $8.88. What was the share of each one of the 24 boys and girls?

Divide, and then check your work:

4. $1755 \div 45$.
5. $5796 \div 84$.
6. $2640 \div 55$.
7. $7154 \div 73$.
8. $5395 \div 83$.
9. $4026 \div 76$.
10. $4368 \div 84$.
11. $8777 \div 67$.
12. $3240 \div 45$.
13. $4710 \div 30$.
14. $3410 \div 55$.
15. $8100 \div 27$.
16. $9840 \div 48$.
17. $9856 \div 32$.
18. $6524 \div 28$.
19. $6794 \div 79$.
20. $4350 \div 58$.
21. $4704 \div 96$.
22. $3626 \div 98$.
23. $6167 \div 79$.
24. $2822 \div 87$.

Review Questions

1. How many feet are there in $\frac{2}{3}$ yd.?
2. Which months have 30 da.?
3. How many seconds are there in 10 min.?
4. How many pecks are there in 2 bu. 2 pk.?
5. How do you write 24 in Roman numerals?
6. How many inches are there in $\frac{1}{2}$ yd.?
7. Which is the longer, $\frac{1}{2}$ ft. or $\frac{1}{3}$ ft.?
8. How many feet are there in 252 in.?
9. Which is the larger number, L or XXXVIII?
10. How many ounces are there in $\frac{1}{2}$ lb.?
11. How do you write six million six in figures?
12. How many pints are there in 7 qt. 1 pt.?
13. Mr. Bond bought $1\frac{1}{2}$ T. of coal. How many pounds of coal did he buy?
14. If a train that is due at 8:15 P.M. is 45 min. late, at what time will it arrive?

See if you can give the meaning of each of these:

15. lb.	19. mo.	23. bu.	27. $.	31. pk.
16. yr.	20. yd.	24. ft.	28. hr.	32. min.
17. in.	21. oz.	25. ¢.	29. qt.	33. da.
18. pt.	22. wk.	26. T.	30. A.M.	34. sec.

Add, and then check your work:

1.	2.	3.	4.	5.	6.
10	45	86	50	46	58
28	56	37	84	93	86
72	85	95	47	56	45
32	96	36	64	73	78
29	87	68	89	57	99
48	45	79	76	26	97

See how quickly you can do these additions:

7.	8.	9.	10.	11.
795	250	804	680	589
109	192	179	553	941
120	837	183	876	460
475	753	316	797	299
818	625	270	648	837

See if you can do these additions correctly:

12.	13.	14.	15.
6540	7690	8783	4987
4675	9635	3397	5497
9589	5946	8948	8659
4697	7577	9675	7568

16.	17.	18.
$99.49	$58.59	$988.99
58.84	68.76	929.43
85.28	97.83	698.57
46.69	65.48	756.69

Find the sums:

1. $76 + 23$.
2. $42 + 39$.
3. $35 + 28$.
4. $69 + 15$.
5. $42 + 58$.
6. $18 + 35$.
7. $27 + 28$.
8. $39 + 25$.
9. $89 + 12$.
10. $28 + 16$.
11. $19 + 27$.
12. $57 + 19$.

Find the differences:

13. $92 - 13$.
14. $75 - 49$.
15. $80 - 52$.
16. $48 - 29$.
17. $83 - 24$.
18. $64 - 15$.
19. $91 - 53$.
20. $86 - 49$.
21. $57 - 19$.
22. $90 - 36$.
23. $76 - 18$.
24. $85 - 47$.

Multiply, and then check your work:

25. 574×293.
26. 745×518.
27. 906×257.
28. 832×954.
29. 937×608.
30. 457×647.
31. 283×681.
32. 908×709.
33. 960×384.

Divide, and then check your work:

34. $8841 \div 21$.
35. $6963 \div 33$.
36. $8862 \div 42$.
37. $3575 \div 55$.
38. $2516 \div 74$.
39. $3036 \div 66$.
40. $4524 \div 87$.
41. $2886 \div 78$.
42. $1482 \div 19$.
43. $4185 \div 45$.
44. $1372 \div 98$.
45. $3724 \div 76$.

1. Find the sum of 189 and 706.

2. How much more is 900 than 508?

3. Find the sum, the difference, the product, and the quotient of 75 and 25.

4. How much is $9+0$? 9×0? $9-0$? $0\div9$? $9+1$? 9×1? $9-1$? $9\div1$? $9\div9$?

Read the following sentences, using "larger" or "smaller" in place of the blanks:

5. In multiplying in long division, the product should not be —— than the number above it.

6. In subtracting in long division, the remainder should be —— than the divisor.

7. If the product in long division is too large, try a —— quotient figure.

8. If the remainder in long division is too large, try a —— quotient figure.

Give the quotients and any remainders:

9.	2)8	3)3	5)0	4)20	6)48
10.	4)840	3)963	2)806	3)521	6)625
11.	8)817	9)504	6)923	5)560	7)950
12.	5)401	6)905	7)850	8)1752	9)$6.12
13.	7)840	8)900	6)901	9)3798	7)$0.84

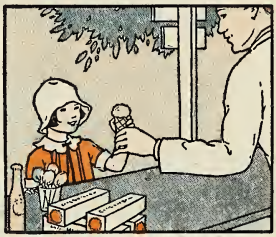
CHAPTER EIGHT

MEASURES AND FRACTIONS

I. READING AND WRITING NUMBERS

Numbers Representing Millions

ALL the ice cream made in the United States in a recent year was worth $286,175,686. Do you know how much this is?



Each group of figures is named like this:

Millions	Thousands	Ones
286	175	686

It is read "two hundred eighty-six million one hundred seventy-five thousand six hundred eighty-six."

Read these numbers:

1. 821,583,769.
2. 143,741,582.
3. 575,500,000.
4. 617,070,070.
5. 404,404,404.
6. 878,000,878.
7. 900,000,000.
8. 580,580,580.
9. 629,005,201.

Read these statements:

1. In a recent year the people of the United States ate 244,581,962 gal. of ice cream and more than 900,000,000 lb. of cake.

2. Recently there were about 814,169 teachers and 24,741,468 pupils in our public schools.

3. There are more than 17,746,000 telephones in the United States.

4. The sun is 92,897,400 miles from the earth.

5. Recently there were about 59,829,000 cattle, 51,223,000 hogs, and 40,748,000 sheep in our country.

Write the following numbers in figures:

6. Fifteen million two thousand nineteen.

7. Sixty-two million one hundred thirty.

8. Forty-one million six thousand six.

9. Four hundred eighty-seven million.

10. Five hundred sixteen million three hundred.

11. Copy and bring to class any numbers you can find that mean millions.

12. What is the largest number that you can write with 6 figures? with 9 figures?

13. What is the smallest number that you can write with 6 figures not all zeros? with 9 figures?

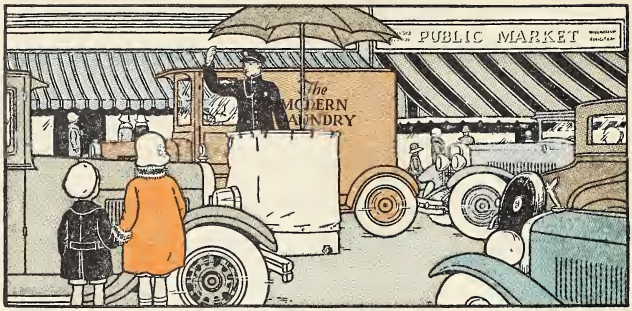
Practice for Speed

See how quickly you can add and check:

1. 2879	2. 3539	3. 4968	4. 9297
4507	6767	2010	900
4895	3849	6799	6597
6758	3456	4538	5249
5. 986	6. 56	7. 616	8. 2234
45	149	997	1371
800	878	389	5190
502	980	32	2359
929	561	565	6718

See how quickly you can subtract and check:

9. 8765	10. 9003	11. 7883	12. 9056
3907	2159	2928	5487
13. 8917	14. 9584	15. 9123	16. 6246
1368	4609	2257	1359
17. 6135	18. 5213	19. 8275	20. 8212
2468	1986	4689	1957
21. 7023	22. 6512	23. 9350	24. 6234
3174	1795	6463	3485



1. In one month in a recent year the factories in this country made 373,140 passenger cars and 44,071 motor trucks. How many more passenger cars than trucks were made that month?

2. In the same year the factories made 45,165 trucks in March and 29,981 in July. How many more were made in March than in July?

3. In a recent year the following states collected these amounts in taxes on gasoline used in cars:

California,	$16,502	Ohio,	$13,257
Florida,	11,431	South Dakota,	1,925
Iowa,	4,842	Texas,	5,227

Which state collected the most money? How much more did it collect than each of the other states?

4. In Ex. 3, how much more money did Texas collect than South Dakota? than Iowa?

Harry and His Airplane

HARRY HART owns an airplane. He takes up passengers at $1.75 each. In the first week 7 people rode with him. How much did they pay him in all?

How do you find the amount?

Where do you put the decimal point in the answer?

$1.75
7
$12.25

In June there were 87 people who rode in Harry's airplane. They each paid him $1.75. How much did they pay in all?

How do you find out?

Where do you write the right-hand figure of the product of 8×175?

How do you finish the example?

What is the answer?

$1.75
87
12 25
140 0
$152.25

During Fair Week there were 287 people who had a ride in the airplane. At $1.75 each, how much did these people pay Harry?

By what number do you multiply first? By what one next? By what one last?

What shows that the answer means dollars and cents?

How do you check the answer in multiplication? Check each of the three answers above.

$1.75
287
12 25
140 0
350
$502.25

1. The Lake Street bus averages 208 passengers a day. How many passengers does it carry in 313 da.?

2. A mill bought 150 bales of cotton. The average weight of each bale was 498 lb. How many pounds of cotton were there in all?

3. Tom was reading about an airplane that can travel 102 miles an hour. How many miles will such a plane go in 130 hr.?

Multiply, and then check your work, being careful about the zeros:

4. 864×457.
5. 450×651.
6. 504×374.
7. 941×289.
8. 905×903.
9. 680×627.
10. 908×476.
11. 749×508.
12. 768×146.
13. 806×390.
14. 917×467.
15. 950×726.
16. 968×851.
17. 237×392.
18. 630×798.
19. 283×468.
20. 908×109.
21. 237×157.
22. 906×289.
23. 960×567.
24. 148×289.
25. 105×325.
26. 574×986.
27. 806×930.
28. 745×708.
29. 765×649.
30. 312×908.
31. 930×896.
32. 987×728.
33. 960×809.
34. 709×974.
35. 870×698.
36. 657×985.

NED'S father works in a hat factory. Last week they made 234 hats. At $6 each, how much were all the hats worth?

The answer is 234 × $6.

You might multiply the 6 by 234, as shown in the first one of the examples at the right.

It is much shorter and easier to multiply 234 by 6, as shown in the second example.

6	234
234	6
24	1404
18	
12	
1404	

The answer is $1404. You know that it is going to mean dollars, because each hat was worth $6.

A city coal dealer had 236 truck loads of coal. Each load weighed 5 T. on the average. How much did all the coal weigh?

Multiply the shorter way.

Here the answer means tons and not dollars.

There were 1180 T. of coal.

236
5
1180

Always multiply the shorter way in such cases.

In these examples think first what the name of the answer will be. Then multiply the shorter way:

1. $97 × 3.
2. $65 × 8.
3. $84 × 7.
4. 428 × 6¢.
5. 395 × 4¢.
6. 719 × 8¢.
7. 53 × 5 tops.
8. 89 × 3 hens.
9. 76 × 4 boys.

1. Joe's father has a chicken farm. He bought 23 small chicken coops at $7 apiece. How much did they all cost?

2. He bought 125 ft. of wire fencing at 9¢ a foot. How much did it cost?

3. He sold 45 fine hens for $3 each. How much did he receive for all of them?

4. At an average of 4 eggs apiece a week, how many eggs will he get from 345 hens?

5. It costs 9¢ to feed a hen a week. How much does it cost to feed 345 hens for a week?

6. Joe's father sold 986 baby chicks for 9¢ each. How much did he receive for all of them?

7. He sent 135 hens to market. The hens averaged 5 lb. apiece. How much did they all weigh?

8. He sold 476 doz. eggs at 52¢ a dozen. How much did he receive for these eggs?

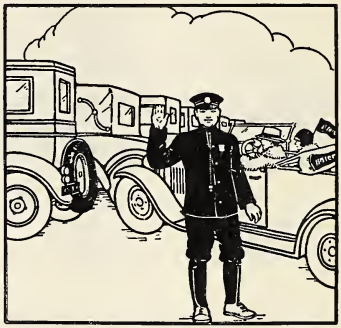
Try to give all the answers orally:

1.	7)140	4)164	2)142	6)240	3)159
2.	6)306	5)205	4)360	3)156	7)357
3.	3)336	8)880	7)707	2)404	8)720
4.	6)420	5)450	3)270	4)368	6)600
5.	8)168	9)819	8)728	3)249	7)287
6.	2)800	3)189	7)497	6)426	2)126

See how well you know the division facts:

7.	6)186	8)160	3)129	2)188	6)366
8.	5)155	9)369	8)568	2)164	7)637
9.	8)248	6)546	4)128	9)549	5)255
10.	2)642	7)147	8)328	5)355	9)729
11.	3)300	6)666	3)219	9)639	6)126
12.	2)804	4)280	3)609	8)808	9)459
13.	9)540	7)350	8)648	9)810	5)405
14.	2)102	5)250	8)480	7)420	6)540
15.	5)305	4)204	2)108	8)560	6)606
16.	7)567	9)279	4)328	7)280	6)480

1. There were 679 automobiles in the space near the ball field. The policeman had the drivers park them in rows of 25 cars each. How many rows were there, and how many cars were left over?



2. From the Boy-Scout camp there were 21 boys who came to the game. They paid $7.35 for their tickets. What did each ticket cost?

3. There were 1147 people in 37 rows of seats. What was the average number of people to a row?

4. At 15 games the "Eagles" collected $5775 for tickets. What was the average at each game?

Divide and check, remembering the remainders:

5. $968 \div 26$.
6. $570 \div 24$.
7. $881 \div 45$.
8. $979 \div 37$.
9. $998 \div 83$.
10. $957 \div 56$.
11. $939 \div 72$.
12. $640 \div 35$.
13. $635 \div 27$.
14. $829 \div 46$.
15. $700 \div 37$.
16. $970 \div 46$.
17. $567 \div 27$.
18. $799 \div 36$.
19. $3368 \div 57$.
20. $4025 \div 86$.
21. $2815 \div 77$.
22. $6409 \div 85$.
23. $7059 \div 94$.
24. $4090 \div 76$.
25. $5739 \div 83$.

SOME boys and girls find that divisors ending in 8 or 9 give them the most trouble in long division. Do you remember what you learned on pages 416 and 417 about these divisors?

In dividing 479 by 28, of what number do you first think as the divisor?

What is the first quotient figure?

What is the first remainder? Is it smaller than the divisor?

Why is 7 and not 6 the second quotient figure?

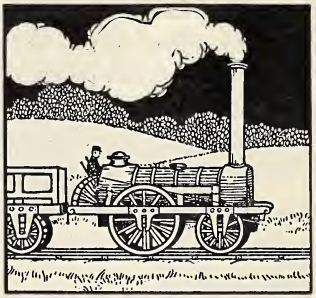
What is the complete quotient? What is the remainder? How do you check the answer?

```
  17
28)479
  28
 199
 196
   3
```

Divide, and then check your work:

1. 775 ÷ 29.
2. 998 ÷ 28.
3. 827 ÷ 39.
4. 989 ÷ 58.
5. 742 ÷ 49.
6. 991 ÷ 38.
7. 843 ÷ 29.
8. 957 ÷ 68.
9. 915 ÷ 48.
10. 899 ÷ 69.
11. 3309 ÷ 58.
12. 4765 ÷ 69.
13. 1329 ÷ 39.
14. 1111 ÷ 38.
15. 3265 ÷ 89.
16. 7497 ÷ 78.
17. 6959 ÷ 98.
18. 4438 ÷ 79.
19. 2313 ÷ 49.
20. 7357 ÷ 98.
21. 3518 ÷ 78.
22. 4625 ÷ 69.
23. 3315 ÷ 58.
24. 4140 ÷ 99.
25. 4900 ÷ 68.
26. 4570 ÷ 49.
27. 5390 ÷ 78.
28. 2914 ÷ 89.
29. 4298 ÷ 48.
30. 5299 ÷ 98.

1. It is 1102 miles from Ida's home to Chicago by railroad. One of the first engines, the Rocket, could run 29 miles an hour. How long would it take this engine to go from Ida's home to Chicago?



2. In Ex. 1, how long would it take one of our trains today to go the 1102 miles at an average of 38 miles an hour?

3. Mr. Olsen, a salesman, drove his automobile from Chicago to Washington in 29 hr. By his route it was 928 miles. How many miles an hour did he average?

4. At 58 miles a day, how long would it take to ride a bicycle the 928 miles in Ex. 3?

Divide, and then check your work:

5. $950 \div 49$.	12. $9507 \div 78$.	19. $2147 \div 58$.
6. $559 \div 18$.	13. $7129 \div 98$.	20. $1600 \div 76$.
7. $847 \div 58$.	14. $4917 \div 59$.	21. $5390 \div 69$.
8. $400 \div 19$.	15. $2650 \div 49$.	22. $6400 \div 79$.
9. $521 \div 39$.	16. $5490 \div 77$.	23. $4457 \div 84$.
10. $890 \div 29$.	17. $2767 \div 98$.	24. $9128 \div 95$.
11. $931 \div 38$.	18. $3645 \div 79$.	25. $5989 \div 82$.

THIS page will help you to find out how well you can solve problems. After you have finished, mark your paper according to the scale in the table.

Correct	Mark
9 or 10	Excellent
7 or 8	Good
5 or 6	Fair
0 to 4	Poor

1. At our store an ice-cream cone costs 5¢. Agnes has a quarter. How many cones can she buy?

2. Margaret has 18 chocolates and 20 pieces of peppermint candy. How many pieces has she in all?

3. How many feet are there in 20 yd. of rope?

4. Bert paid 15¢ for dog biscuit and 45¢ for a dog collar. How much did he pay for both?

5. At 10¢ each, how much will 20 balloons cost?

6. Tom wants a padlock. One costs 60¢ and another costs 45¢. What is the difference in price?

7. Mrs. Wilson baked 7 doz. cookies on Saturday morning. How many cookies did she bake?

8. When Nell went to the post office, how much did she pay for 50 stamps at 2¢ each?

9. Laura has a half dollar and Nell has a quarter. Laura has how many cents more than Nell?

10. Bob had $1. He paid 35¢ for boards and 15¢ for nails. How much did he have left?

1. Nell is sorting 40 number cards into packs of 10 cards each. How many packs of number cards will she have?

2. How many packs would Nell have if she had 50 cards? 90 cards?

$$10\overline{)40}\quad 4$$

3. Divide 60 by 10 and then divide 80 by 10. What is a short way of dividing such numbers by 10?

4. Nell sorted 180 cards of easy number facts into packs of 30 cards each. How many packs of these cards did Nell have?

$30 = 3 \times 10$. If you cut off the zeros, as in Ex. 1, by what must you then divide 18? How much is $18 \div 3$?

$$30\overline{)180}\quad 6$$

5. Miss Day had a big box with 800 cards in it. The cards were in packs of 200 each. How many packs were there?

If you cut off two zeros from each number, by what must you then divide the 8? How much is $8 \div 2$?

$$200\overline{)800}\quad 4$$

Divide, and then check your work by multiplying:

6. $80 \div 20$.	10. $210 \div 70$.	14. $720 \div 90$.
7. $90 \div 30$.	11. $320 \div 80$.	15. $840 \div 70$.
8. $160 \div 20$.	12. $630 \div 90$.	16. $900 \div 300$.
9. $180 \div 60$.	13. $640 \div 80$.	17. $1800 \div 600$.

LAST year the 821 children in the Adams School had 10,673 pieces of their work in the school exhibition. What was the average number for each child?

The average is 10,673 ÷ 821.

Since 106 does not contain 821, the partial dividend is 1067.

There is one 8 in 10. Write 1 in the quotient above the 7.

$1 \times 821 = 821$. Write 821.

$1067 - 821 = 246$. Is the remainder smaller than the divisor?

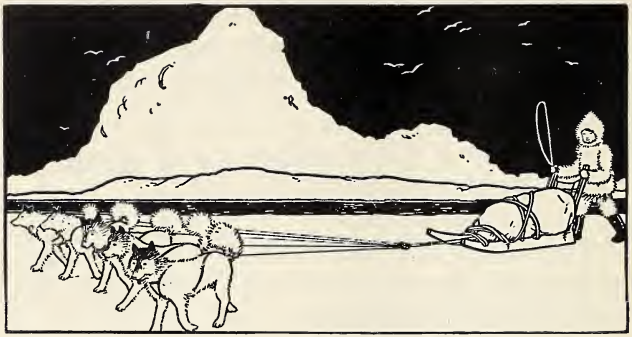
Bring down the 3, and finish the example.

```
   13
821)10673
   821
  2463
  2463
```

The last figure of the quotient always goes over the last figure of the dividend.

Divide, and then check your work by multiplying:

1. 7644 ÷ 637.
2. 9854 ÷ 758.
3. 8232 ÷ 392.
4. 9152 ÷ 286.
5. 9765 ÷ 315.
6. 9009 ÷ 429.
7. 9588 ÷ 564.
8. 7007 ÷ 143.
9. 8778 ÷ 209.
10. 9477 ÷ 351.
11. 9768 ÷ 407.
12. 9375 ÷ 625.
13. 8932 ÷ 308.
14. 9348 ÷ 492.
15. 7839 ÷ 603.
16. 8616 ÷ 718.
17. 15,996 ÷ 516.
18. 10,965 ÷ 731.
19. 13,482 ÷ 642.
20. 10,626 ÷ 253.
21. 11,050 ÷ 425.
22. 18,762 ÷ 354.
23. 29,632 ÷ 926.
24. 17,157 ÷ 817.



1. In a race, Split-the-Wind drove his dogs 7040 yd. in 20 min. How many yards did he average a minute?

2. The dogs once traveled 133 miles in 19 hr. How many miles did they average an hour?

3. The mail carriers drove their dog teams 8000 miles in 32 wk. How far did they average each week?

4. If a good sledge dog costs $250, how many dogs can a man buy for $5750?

5. One year there were 35,750 blue foxes on 275 fox farms in Alaska. What was the average number to each farm?

6. A herd of 93 reindeer was worth $2232. At this rate, what was each reindeer worth?

7. In 364 farms in Alaska there were 91,000 acres of land. How many acres did each farm average?

LAST month the 289 children in the Carver School put $739.84 in the school savings bank. What was the average amount saved by each child?

$$\begin{array}{r} \$2.56 \\ 289\overline{)\$739.84} \\ 578 \\ \hline 1618 \\ 1445 \\ \hline 1734 \\ 1734 \\ \hline \end{array}$$

The average is $739.84 ÷ 289.

289 is nearly 300. There are two 3's in 7. Write 2 over the 9.

Multiply and subtract as usual.

Is the remainder smaller than the divisor?

What do you do next?

Why is the third quotient figure a 6 and not a 5?

Where do you put the decimal point? What is the answer to the problem?

Put the decimal point in the quotient directly above the decimal point in the dividend.

Divide, and then check your work:

1. 298)$747.98	2. 497)$611.31	3. 385)$558.25
4. 596)$780.76	5. 389)$840.24	6. 783)$939.60
7. 598)$813.28	8. 687)$721.35	9. 549)$581.94
10. 307)$767.50	11. 271)$861.78	12. 608)$784.32
13. 569)$779.53	14. 607)$637.35	15. 498)$572.70
16. 329)$822.50	17. 678)$874.62	18. 509)$549.72

1. What two questions should you always ask yourself in long division? Look on page 410 if you do not know.

2. What do you do when any product in long division is too large?

3. What do you do when any remainder in long division is too large?

Divide, and then check your work:

4. 19,598 ÷ 239.
5. 27,877 ÷ 457.
6. 32,754 ÷ 618.
7. 13,680 ÷ 570.
8. 19,215 ÷ 915.
9. 11,410 ÷ 326.
10. 26,133 ÷ 843.
11. 16,401 ÷ 781.
12. 11,898 ÷ 164.
13. 18,882 ÷ 592.
14. 13,964 ÷ 489.
15. 19,488 ÷ 196.
16. 93,798 ÷ 135.
17. 214,854 ÷ 836.
18. 128,736 ÷ 596.
19. 105,534 ÷ 858.
20. 126,902 ÷ 214.
21. 248,055 ÷ 719.
22. 151,804 ÷ 708.
23. 503,006 ÷ 589.
24. 408,736 ÷ 964.
25. 758,200 ÷ 340.
26. 456,824 ÷ 857.
27. 302,936 ÷ 714.
28. 255,895 ÷ 975.
29. 578,485 ÷ 809.

Reading the Thermometer

1. Hal's father said, "The paper says that it is going to freeze tonight. Look at the thermometer on the porch." The thermometer looked like this. Find zero on it.

2. Each space means 2 degrees. How many degrees above zero is the mercury in this thermometer?

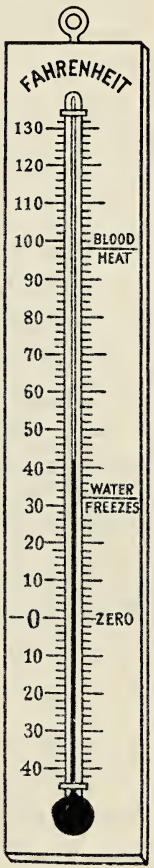
3. Find the freezing point. How many degrees above zero is it?

4. A living room should have a temperature of 68°, which means 68 degrees. How many degrees too warm or too cold is 72°? 58°?

5. Did the mercury rise when Hal brought the thermometer into the house? Did it fall?

6. Show where the mercury on this thermometer would be when the temperature is 60°; 85°; 40°; 92°.

7. In very cold weather the mercury may fall to zero or below. Show where it would be if it were 10° above zero; 10° below zero.



1. The boiling point of water is 212°. It is shown on thermometers used in cooking. How many degrees are there between the freezing point and the boiling point of water?

2. For eggs to hatch they must be kept at a temperature of 102°. How much above the correct room temperature of 68° is 102°?

3. Clara said that the room was too cold. The thermometer showed 70°. Was Clara right?

4. When the temperature changes from 70° to 56°, is it growing warmer or cooler? How much?

5. The temperature in Mr. Reed's greenhouse was 72°. It was 45° out of doors. How much colder was it out of doors than in the greenhouse? Was it cold enough out of doors for skating?

6. On the same day that the temperature was 26° in a Dakota town it was 66° in a California town. What was the difference in temperature between the two places that day?

7. One day in Maine it was 5° below zero at noon and 10° below at 6 P.M. Was it warmer or colder at 6 o'clock? How many degrees? What time of the year was it?

8. How many degrees does the temperature change when the mercury falls from 10° above zero to 10° below zero?

YOU have learned about measuring length in yards, feet, and inches. Long distances are usually measured in miles, but in some cases the rod is used.

$5\frac{1}{2}$ yards or $16\frac{1}{2}$ feet = 1 rod (rd.)
320 rods or 5280 feet = 1 mile (mi.)

1. Measure off 1 rd. on the schoolroom floor.

2. Mary lives 16 blocks from school. Each block is 20 rd. long. How many rods is it to school?

3. John lives just as far from school as Mary. How many miles does John live from school?

4. Name a place that is 1 mi. from your school.

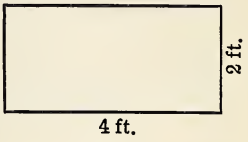
5. Cut a piece of stout string 1 rd. long. Tie a piece of white string on it every foot. How many white pieces are there? What part of a foot is left over?

6. On the string in Ex. 5 tie a piece of red string every yard. How many red pieces are there? How many inches are left over?

Give the missing numbers:

7. $\frac{1}{2}$ ft. = —— in.
8. $\frac{1}{4}$ ft. = —— in.
9. $\frac{1}{3}$ yd. = —— ft.
10. $\frac{1}{2}$ mi. = —— rd.
11. $\frac{1}{4}$ mi. = —— rd.
12. $\frac{1}{8}$ mi. = —— rd.

1. Hal is making a pen for his little chickens. The pen is to be 4 ft. long and 2 ft. wide. How many feet of wire fencing will Hal need to buy to go round all four sides of the chicken pen?



2. The distance round the pen is called its **perimeter.** What numbers do you have to add to find the perimeter of Hal's pen?

3. How many yards are there in the perimeter of Hal's chicken pen?

4. Find the perimeter of the top of your desk.

5. Measure the schoolroom. What is its perimeter?

6. A table cover is 20 in. long and 15 in. wide. How many inches of fringe will it take to go round it?

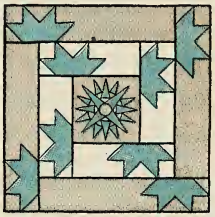
7. Joe wants to put a fence round a vacant lot for his pony. The lot is 100 ft. long and 50 ft. wide. How much fencing will it take?

8. Mary roller-skated round a block that is 20 rd. long and 16 rd. wide. How many rods did she skate?

9. Ned lives on a farm that is 160 rd. long and 80 rd. wide. What is its perimeter?

10. Mrs. Ames is knitting a border for a bedspread that is 90 in. long and 80 in. wide. How many inches does she need to knit?

1. Susie's grandmother is making a quilt by sewing together square pieces that look like this. Each piece is 6 in. long and 6 in. wide. What is its perimeter?



2. The small piece in the middle is 2 in. long on each side. What shape is it?

3. The white pieces next to the middle square are each 3 in. long and 1 in. wide, with corners like a square. They are called **rectangles**. How many white rectangles are there? How many brown rectangles are there?

4. How does a rectangle differ from a square?

5. In this picture of part of a quilt all the pieces are squares. There are 5 rows of small squares. How many small squares are there in each row? How many small squares are there in all?

6. The part of the quilt shown in the picture of Ex. 5 is 5 in. long on each side. How many 1-inch squares are there in a 5-inch square?

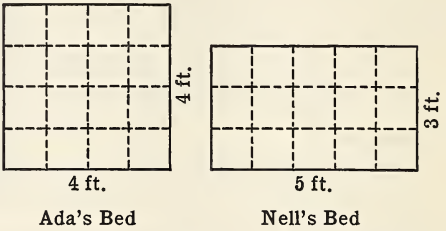
7. Draw and cut out a square 1 in. on a side.

8. Draw and cut out a square 2 in. on a side. Fold it into 1-inch squares. How many 1-inch squares are there in a 2-inch square?

ADA'S flower bed is 4 ft. square and Nell's is 5 ft. long and 3 ft. wide. Which one of the flower beds is the larger?

In answering this, we must find the areas of the beds.

Area tells us how large a surface is.



The pictures show the beds marked off in squares that are 1 ft. on a side. **A square 1 ft. on a side has an area of 1 square foot (1 sq. ft.).**

In Ada's bed, how many square feet are there in each row? How many rows are there? How many square feet are there in the bed?

In Nell's bed, how many square feet are there in each row? How many rows are there? What is the area of Nell's bed?

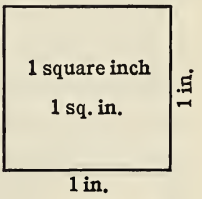
Which flower bed is the larger? It is how much larger than the other?

To find the area of a rectangle, multiply the length by the width.

The numbers which you multiply must have the same names; for example, you cannot multiply feet by inches to find the area.

THIS picture shows a square that is 1 in. on a side. **A square 1 in. on a side has an area of 1 square inch (1 sq. in.).**

A square 1 yd. on a side has an area of 1 square yard (1 sq. yd.).



1. Draw on the board a square 1 ft. on a side. How many square inches are there in a square foot?

2. Draw a rectangle 4 in. long and 3 in. wide. How many square inches are there in it?

Find the area of a rectangle in which the length and width are as follows:

3. 5 in., 2 in.	7. 9 in., 3 in.	11. 12 ft., 2 ft.
4. 7 in., 3 in.	8. 8 in., 5 in.	12. 10 ft., 6 ft.
5. 6 in., 5 in.	9. 7 in., 6 in.	13. 11 ft., 4 ft.
6. 9 in., 2 in.	10. 6 in., 4 in.	14. 15 ft., 2 ft.

15. Clara is making a table cover 2 yd. long and 1 yd. wide. How many square yards are there in it?

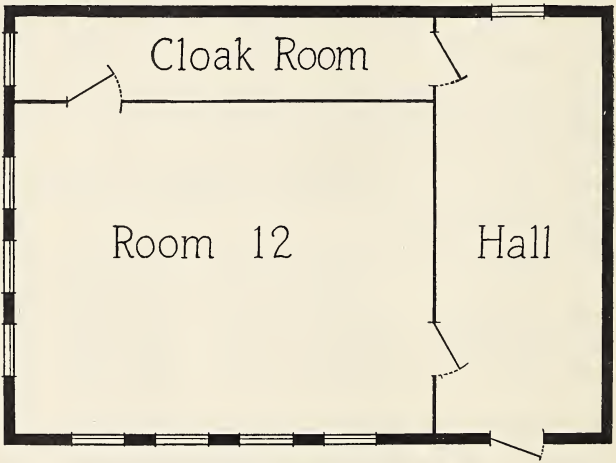
16. How many yards of fringe does Clara need for the table cover in Ex. 15?

17. How many feet long is each side of a square that has an area of 1 sq. yd.? How many square feet are there in 1 sq. yd.?

THE pictures on page 450 are much smaller than the flower beds themselves. Ada's bed was 4 ft. long, but the picture is only 1 in. long.

Making such a picture is called **drawing to scale.** In that picture the **scale** used was **1 in. to 4 ft.**

Below is a simple floor plan of a schoolroom. The scale used in making this drawing was 1 in. to 10 ft.



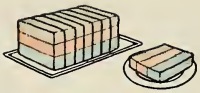
With your ruler find the length and width of

1. Room 12. 2. The cloak room. 3. The hall.

4. Find the area of Room 12; of the cloak room; of the hall; of the three rooms together.

$\frac{1}{2}$ $\frac{1}{2}$

$\frac{3}{4}$ $\frac{1}{4}$



$\frac{7}{8}$ $\frac{1}{8}$

1. Jane cut a candy bar into 2 equal pieces. Each piece was what part of the candy bar?

2. Jane cut a small cake into 4 equal pieces. What part of the cake was 1 piece? 3 pieces?

3. She cut a brick of ice cream into 8 equal pieces and took 1 piece. What part of the brick did she take? What part of the brick was left on the platter?

Numbers like $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, and $\frac{7}{8}$ are called fractions.

4. If you cut a pie into 6 equal pieces and take 5 of them, what fraction of the pie do you take?

5. In the fraction $\frac{3}{4}$, the 4 means that a whole thing has been divided into 4 equal parts. The 3 means that 3 of the parts have been thought of, or used, or taken. In the fraction $\frac{7}{8}$, what does the 8 mean? What does the 7 mean?

6. In $\frac{5}{6}$, what does the 6 mean? the 5?

7. Give the meaning of each of these fractions:

$\frac{1}{2}$ $\frac{2}{5}$ $\frac{1}{8}$ $\frac{7}{8}$ $\frac{1}{7}$ $\frac{5}{7}$ $\frac{4}{5}$ $\frac{1}{9}$ $\frac{6}{9}$ $\frac{11}{16}$

FRACTIONS have names just as other numbers do. In the fraction $\frac{3}{4}$ the name of the fraction is fourths. We say 3 fourths just as we say 3 balls or 3 pencils or 3 apples.

In $\frac{3}{4}$ the 3 is called the **numerator** of the fraction, and the 4 is called the **denominator.**

The denominator of a fraction always gives the name of the fraction.

The numerator of the fraction shows how many parts of that name are meant.

In the fraction $\frac{3}{4}$ the numerator 3 shows that 3 of 4 equal parts are meant.

The numerator and the denominator are called the terms of a fraction.

---

1. If you divide a watermelon into 5 equal pieces and take 2 of them, what fraction of the whole melon do you take? In this fraction, what is the denominator? the numerator?

2. Read these fractions, and in each one tell which is the numerator and which the denominator:

$\frac{1}{4}$ $\frac{3}{8}$ $\frac{5}{7}$ $\frac{2}{9}$ $\frac{3}{5}$ $\frac{2}{7}$ $\frac{1}{5}$ $\frac{6}{9}$ $\frac{7}{8}$ $\frac{2}{4}$ $\frac{5}{8}$

3. In Ex. 2, which fractions have the same names?

4. Write three fractions that have the same denominator and different numerators.

FRACTIONS to be added must have the same names. We cannot add fractions which have different names any more than we can add 3 balls and 4 tops.

Add $\frac{3}{8}$ and $\frac{4}{8}$.

3 eighths	$\frac{3}{8}$
4 eighths	$\frac{4}{8}$
7 eighths	$\frac{7}{8}$

Add the numerators and give the fraction its name.

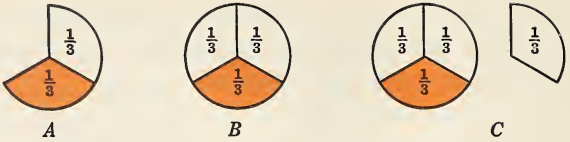
We usually do the work in the shorter way shown at the right, but the addition is the same.

Add, watching the names of the numbers:

1. 1 ball 2 balls	2. 3 tops 2 tops	3. 2 pens 1 pen	4. 5 boys 3 boys
5. 1 fourth 2 fourths	6. 3 eighths 2 eighths	7. 2 fifths 1 fifth	8. 5 tenths 3 tenths

Add these fractions:

9. $\frac{1}{8}$ $\frac{2}{8}$	10. $\frac{1}{9}$ $\frac{4}{9}$	11. $\frac{1}{5}$ $\frac{2}{5}$	12. $\frac{1}{3}$ $\frac{1}{3}$	13. $\frac{2}{7}$ $\frac{3}{7}$	14. $\frac{1}{6}$ $\frac{4}{6}$
15. $\frac{1}{7}$ $\frac{5}{7}$	16. $\frac{2}{8}$ $\frac{3}{8}$	17. $\frac{1}{9}$ $\frac{1}{9}$	18. $\frac{4}{7}$ $\frac{2}{7}$	19. $\frac{1}{6}$ $\frac{2}{6}$	20. $\frac{7}{9}$ $\frac{1}{9}$
21. $\frac{2}{9}$ $\frac{2}{9}$	22. $\frac{4}{7}$ $\frac{1}{7}$	23. $\frac{1}{5}$ $\frac{3}{5}$	24. $\frac{1}{4}$ $\frac{1}{4}$	25. $\frac{2}{9}$ $\frac{4}{9}$	26. $\frac{1}{7}$ $\frac{2}{7}$



1. How many thirds of a circle are there in figure *A*? in figure *B*? in figure *C*?

2. How many thirds are there in 1 whole circle?

$\frac{1}{3}+\frac{1}{3}+\frac{1}{3}=\frac{3}{3}$, or 1

3. In $\frac{3}{3}$, what is the numerator? the denominator?

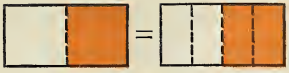
4. Is $\frac{2}{3}$ of a circle more than 1 whole circle? Is it less? Compare the numerator and denominator.

5. Is $\frac{4}{3}$ of a circle more than 1 whole circle? Is it less? Compare the numerator and denominator.

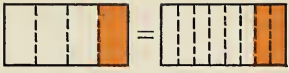
6. When the numerator and denominator of a fraction are the same, the fraction is equal to 1. To what are these fractions equal: $\frac{4}{4}$, $\frac{5}{5}$, $\frac{6}{6}$, $\frac{8}{8}$?

7. A fraction that is less than 1, like $\frac{1}{2}$, $\frac{3}{5}$, or $\frac{7}{8}$, is called a **proper fraction.** Find two other proper fractions on this page.

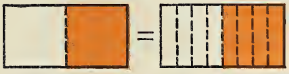
8. A fraction that is equal to 1, like $\frac{3}{3}$, or greater than 1, like $\frac{6}{5}$, is called an **improper fraction.** Find two other improper fractions on this page.



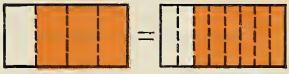
$\frac{1}{2} = \frac{2}{4}$



$\frac{1}{4} = \frac{2}{8}$



$\frac{1}{2} = \frac{4}{8}$



$\frac{3}{4} = \frac{6}{8}$

1. Study the pictures. $\frac{1}{2}$ equals how many fourths?

2. How many eighths are equal to $\frac{1}{4}$? to $\frac{1}{2}$? to $\frac{3}{4}$?

3. Draw and cut out rectangles. Fold them like the pictures. Write the name of the fraction on each part.

Cut out rectangles and fold them to show that

4. $\frac{1}{3} = \frac{2}{6}$. 5. $\frac{2}{3} = \frac{4}{6}$. 6. $\frac{3}{6} = \frac{1}{2}$. 7. $\frac{3}{3} = \frac{6}{6}$.

Cut out a circle and fold it to show that

8. $\frac{1}{2} = \frac{4}{8}$. 9. $\frac{1}{4} = \frac{2}{8}$. 10. $\frac{3}{4} = \frac{6}{8}$. 11. $\frac{4}{4} = \frac{8}{8}$.

Read, and give the missing numbers:

12. 1 = —— sixths. 14. $\frac{1}{2}$ = —— fourths.

13. $\frac{1}{2}$ = —— sixths. 15. $\frac{1}{2}$ = —— eighths.

Give the missing numerators:

16. $\frac{1}{4} = \frac{\quad}{8}$. 18. $\frac{3}{4} = \frac{\quad}{8}$. 20. $\frac{1}{3} = \frac{\quad}{6}$. 22. $\frac{3}{3} = \frac{\quad}{6}$.

17. $\frac{2}{4} = \frac{\quad}{8}$. 19. $\frac{2}{2} = \frac{\quad}{8}$. 21. $\frac{2}{3} = \frac{\quad}{6}$. 23. $\frac{2}{2} = \frac{\quad}{6}$.

ROY'S family ate $\frac{5}{6}$ of a pie at dinner, and Roy had $\frac{1}{6}$ of it next day for his lunch. How much of the pie was eaten?

Add the fractions. $\frac{5}{6} + \frac{1}{6} = \frac{6}{6}$.

How many sixths are equal to 1?

The sum is equal to 1. They ate the whole pie.

$$\frac{5}{6}$$
$$\frac{1}{6}$$
$$\frac{6}{6} = 1$$

Roy's mother used $\frac{2}{3}$ doz. eggs on Wednesday and $\frac{2}{3}$ doz. on Thursday. How many dozen eggs did she use on both days?

Add the fractions. $\frac{2}{3} + \frac{2}{3} = \frac{4}{3}$.

How much more than 1 is $\frac{4}{3}$?

The sum is $\frac{1}{3}$ more than 1, or $1\frac{1}{3}$. She used $1\frac{1}{3}$ doz. eggs on both days.

$$\frac{2}{3}$$
$$\frac{2}{3}$$
$$\frac{4}{3} = 1\frac{1}{3}$$

1. How much more than 1 is $\frac{7}{4}$? $\frac{6}{5}$? $\frac{9}{8}$? $\frac{8}{5}$? $\frac{11}{6}$? $\frac{13}{8}$?

2. Give three other fractions that are more than 1.

3. Lena has $\frac{7}{9}$ yd. of red ribbon and $\frac{4}{9}$ yd. of blue ribbon. How many yards of ribbon has she in all?

4. In going to school, Joe walks $\frac{2}{5}$ mi. and then rides $\frac{4}{5}$ mi. on the car. How much farther than 1 mi. does he live from the school?

Add, giving the sums as 1 or as more than 1:

5.	6.	7.	8.	9.	10.	11.
$\frac{3}{7}$	$\frac{2}{5}$	$\frac{5}{7}$	$\frac{3}{9}$	$\frac{5}{8}$	$\frac{6}{7}$	$\frac{7}{8}$
$\frac{5}{7}$	$\frac{3}{5}$	$\frac{4}{7}$	$\frac{8}{9}$	$\frac{3}{8}$	$\frac{3}{7}$	$\frac{6}{8}$

IN MAKING some candy for her May Day party Betty used $1\frac{1}{2}$ cups of milk for one kind and $2\frac{1}{2}$ cups for another kind. How many cups of milk did she use in all?

$$\begin{array}{r} 1\frac{1}{2} \\ 2\frac{1}{2} \\ \hline 4 \end{array}$$

Add the fractions. $\frac{1}{2} + \frac{1}{2} = \frac{2}{2}$.
$\frac{2}{2}$ is equal to 1; carry the 1.
$1 + 2 + 1 = 4$. The sum is 4.
She used 4 cups of milk.

In making the candy Betty also used $2\frac{2}{3}$ cups of brown sugar and $4\frac{2}{3}$ cups of white sugar. How many cups of sugar did she use in all?

$$\begin{array}{r} 2\frac{2}{3} \\ 4\frac{2}{3} \\ \hline 7\frac{1}{3} \end{array}$$

Add the fractions. $\frac{2}{3} + \frac{2}{3} = \frac{4}{3}$, or $1\frac{1}{3}$.
Write $\frac{1}{3}$ and carry the 1.
$1 + 4 + 2 = 7$. The sum is $7\frac{1}{3}$.
She used $7\frac{1}{3}$ cups of sugar.

Numbers like $1\frac{1}{2}$, $2\frac{1}{2}$, $7\frac{1}{3}$, and so on, are called mixed numbers. Each is made up of a whole number and a fraction.

Add, and then check each answer by going over the work a second time:

1. $2\frac{1}{4}$	2. $2\frac{1}{2}$	3. $3\frac{1}{3}$	4. $5\frac{3}{5}$	5. $5\frac{2}{3}$	6. $2\frac{2}{5}$
$1\frac{3}{4}$	$3\frac{1}{2}$	$5\frac{2}{3}$	$2\frac{4}{5}$	$4\frac{2}{3}$	$6\frac{4}{5}$
7. $2\frac{1}{6}$	8. $1\frac{2}{3}$	9. $3\frac{2}{7}$	10. $4\frac{1}{8}$	11. $1\frac{3}{4}$	12. $2\frac{5}{8}$
$1\frac{5}{6}$	$4\frac{1}{3}$	$7\frac{3}{7}$	$1\frac{7}{8}$	$2\frac{1}{4}$	$3\frac{2}{8}$

IN THIS circle, what part of the circle is colored? How many fourths of the circle are equal to $\frac{1}{2}$ of it? How many eighths of the circle are equal to $\frac{1}{2}$ of it?

$\frac{1}{2} = \frac{2}{4} = \frac{4}{8}$

Since $\frac{1}{2}$, $\frac{2}{4}$, and $\frac{4}{8}$ are equal, we can change any one to either of the others. They are the same fractions expressed in different forms. We say that $\frac{1}{2}$ is the **simplest form** for $\frac{2}{4}$ and $\frac{4}{8}$.

Since $\frac{6}{8} = \frac{3}{4}$, the simplest form for $\frac{6}{8}$ is $\frac{3}{4}$. For fractions like $\frac{4}{4}$, $\frac{8}{8}$, or $\frac{2}{2}$ the simplest form is 1.

Before giving an answer, always see that any fraction in it is in its simplest form.

Add, giving the sums in their simplest forms:

1. $\frac{1}{4}$ $\frac{1}{4}$	**2.** $\frac{2}{4}$ $\frac{2}{4}$	**3.** $\frac{3}{4}$ $\frac{1}{4}$	**4.** $\frac{1}{8}$ $\frac{1}{8}$	**5.** $\frac{1}{8}$ $\frac{3}{8}$	**6.** $\frac{4}{8}$ $\frac{4}{8}$
7. $\frac{5}{8}$ $\frac{1}{8}$	**8.** $\frac{4}{8}$ $\frac{3}{8}$	**9.** $\frac{2}{8}$ $\frac{4}{8}$	**10.** $\frac{1}{2}$ $\frac{1}{2}$	**11.** $\frac{2}{8}$ $\frac{2}{8}$	**12.** $\frac{3}{8}$ $\frac{4}{8}$
13. $\frac{1}{8}$ $\frac{4}{8}$	**14.** $\frac{1}{4}$ $\frac{3}{4}$	**15.** $\frac{2}{8}$ $\frac{3}{8}$	**16.** $\frac{1}{8}$ $\frac{6}{8}$	**17.** $\frac{2}{8}$ $\frac{5}{8}$	**18.** $\frac{1}{8}$ $\frac{7}{8}$
19. $\frac{2}{8}$ $\frac{6}{8}$	**20.** $\frac{1}{8}$ $\frac{5}{8}$	**21.** $\frac{6}{8}$ $\frac{2}{8}$	**22.** $\frac{3}{8}$ $\frac{3}{8}$	**23.** $\frac{7}{8}$ $\frac{1}{8}$	**24.** $\frac{5}{8}$ $\frac{3}{8}$

LUCY walked $\frac{1}{4}$ mi. home from school and then she walked $\frac{3}{8}$ mi. to Jane's house. How far did she walk in all?

The number of miles is $\frac{1}{4} + \frac{3}{8}$.

Unless you can give these fractions the same name (denominator) you cannot add them.

$$\frac{1}{4} = \frac{2}{8}$$
$$\frac{3}{8}$$
$$\frac{5}{8}$$

Change $\frac{1}{4}$ to eighths. $\frac{1}{4} = \frac{2}{8}$.

Add $\frac{2}{8}$ and $\frac{3}{8}$. The sum is $\frac{5}{8}$. Lucy walked $\frac{5}{8}$ mi.

Nan bought $\frac{1}{2}$ lb. of gumdrops and $\frac{5}{8}$ lb. of hard candy. How much candy did she buy in all?

The answer is $\frac{1}{2} + \frac{5}{8}$.

It is easy to see that $\frac{1}{2}$ must first be changed to eighths.

$$\frac{1}{2} = \frac{4}{8}$$
$$\frac{5}{8}$$
$$\frac{9}{8} = 1\frac{1}{8}$$

$\frac{1}{2} = \frac{4}{8}$; $\frac{4}{8} + \frac{5}{8} = \frac{9}{8}$.

The simplest form for $\frac{9}{8}$ is $1\frac{1}{8}$. Nan bought $1\frac{1}{8}$ lb.

Before adding, change the fractions to the same name. Give the answer in its simplest form.

Add, first changing the fractions to the same name:

1. $\frac{1}{8}$	**2.** $\frac{1}{8}$	**3.** $\frac{1}{4}$	**4.** $\frac{5}{8}$	**5.** $\frac{3}{4}$	**6.** $\frac{1}{2}$
$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{8}$	$\frac{3}{8}$
7. $\frac{1}{4}$	**8.** $\frac{7}{8}$	**9.** $\frac{1}{2}$	**10.** $\frac{7}{8}$	**11.** $\frac{1}{2}$	**12.** $\frac{3}{4}$
$\frac{5}{8}$	$\frac{1}{4}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{5}{8}$

1. Hal caught one fish that weighed $1\frac{1}{2}$ lb. and another that weighed $1\frac{1}{4}$ lb. How much did both weigh?

2. Rose caught a fish that weighed $1\frac{3}{4}$ lb. and another that weighed $1\frac{1}{8}$ lb. How much did both weigh?

3. Ned rowed $2\frac{1}{2}$ mi. and Hal rowed $1\frac{3}{4}$ mi. How far did they both row?

4. They rowed $1\frac{1}{2}$ hr., fished $2\frac{1}{4}$ hr., and took $\frac{3}{4}$ hr. to eat lunch. How much time did they spend in all?

5. The lunch weighed $3\frac{1}{4}$ lb., the bait $2\frac{1}{2}$ lb., and the oars $12\frac{3}{4}$ lb. How much did they all weigh?

Add, and then check by going over the work:

6. $1\frac{1}{8}$	7. $2\frac{1}{4}$	8. $1\frac{5}{8}$	9. $3\frac{1}{8}$	10. $3\frac{1}{4}$	11. $5\frac{1}{2}$
$2\frac{1}{4}$	$5\frac{3}{8}$	$6\frac{1}{2}$	$2\frac{3}{4}$	$7\frac{5}{8}$	$4\frac{7}{8}$
12. $1\frac{1}{2}$	13. $2\frac{1}{4}$	14. $1\frac{1}{8}$	15. $2\frac{1}{4}$	16. $1\frac{1}{8}$	17. $3\frac{1}{4}$
$2\frac{1}{2}$	$3\frac{1}{4}$	$2\frac{1}{8}$	$1\frac{1}{4}$	$2\frac{1}{4}$	$2\frac{1}{2}$
$3\frac{1}{2}$	$1\frac{1}{4}$	$5\frac{3}{8}$	$4\frac{1}{2}$	$2\frac{7}{8}$	$6\frac{3}{4}$

1. Mary made some gingerbread men. She used $2\frac{3}{4}$ cups of flour, $\frac{3}{4}$ cup of molasses, $\frac{1}{4}$ cup of brown sugar, $\frac{3}{4}$ cup of water, and $\frac{1}{4}$ cup of butter. How many cups did she use in all?

2. Mary used 3 teaspoonfuls of baking powder, $\frac{1}{3}$ teaspoonful of salt, and $1\frac{1}{3}$ teaspoonfuls of ginger. How many teaspoonfuls did she use in all?

3. Each gingerbread man's head was $\frac{7}{8}$ in. long, his body was $1\frac{3}{8}$ in. long, and his legs were $1\frac{3}{4}$ in. long. How tall was each gingerbread man?

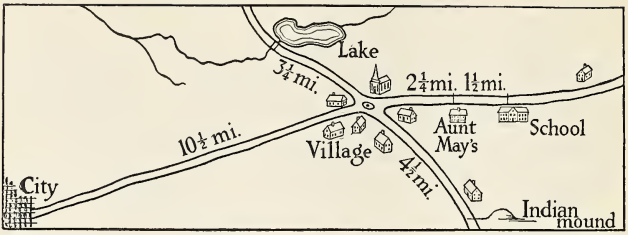
Give the missing numerators:

4. $\frac{1}{2} = \frac{\quad}{4}$.
5. $\frac{1}{4} = \frac{\quad}{8}$.
6. $\frac{1}{3} = \frac{\quad}{6}$.
7. $1 = \frac{\quad}{2}$.
8. $\frac{1}{2} = \frac{\quad}{8}$.
9. $1 = \frac{\quad}{4}$.
10. $1 = \frac{\quad}{8}$.
11. $\frac{2}{4} = \frac{\quad}{2}$.
12. $\frac{2}{8} = \frac{\quad}{4}$.
13. $\frac{6}{8} = \frac{\quad}{4}$.
14. $1 = \frac{\quad}{3}$.
15. $\frac{3}{4} = \frac{\quad}{8}$.
16. $\frac{4}{8} = \frac{\quad}{2}$.
17. $\frac{2}{4} = \frac{\quad}{8}$.
18. $\frac{8}{8} = \frac{\quad}{2}$.
19. $1 = \frac{\quad}{6}$.
20. $\frac{1}{2} = \frac{\quad}{6}$.
21. $\frac{8}{8} = \frac{\quad}{4}$.
22. $\frac{2}{3} = \frac{\quad}{6}$.
23. $1 = \frac{\quad}{5}$.
24. $\frac{3}{3} = \frac{\quad}{6}$.
25. $\frac{4}{4} = \frac{\quad}{2}$.
26. $\frac{2}{6} = \frac{\quad}{3}$.
27. $\frac{4}{8} = \frac{\quad}{4}$.

Give the missing numbers:

28. $\frac{3}{2} = 1$ and $\frac{\quad}{2}$.
29. $\frac{7}{4} =$ —— and $\frac{\quad}{4}$.
30. $\frac{9}{8} =$ —— and $\frac{\quad}{8}$.
31. $\frac{5}{3} =$ —— and $\frac{\quad}{3}$.
32. $\frac{5}{4} =$ —— and $\frac{\quad}{4}$.
33. $\frac{11}{8} =$ —— and $\frac{\quad}{8}$.

Lena's Map



LENA is spending the winter with her Aunt May. Uncle John made this map for her to send with a letter that she was writing to her mother.

1. How far does Aunt May live from the city?
2. How far is Lena's school from the village?
3. How far is the Indian mound from the city?
4. The city is how far from the lake?
5. How far is the Indian mound from Aunt May's?
6. How far does Aunt May live from the lake?
7. How far is the school from the Indian mound?
8. The school children had a picnic at the lake. How far did they have to go?
9. Lena rode her bicycle from Aunt May's to the lake and back again. How far did she go?
10. Aunt May went to the city to shop. How many miles did she travel in going to and from the city?

JUST as we can add only fractions that have the same name, so we can subtract only fractions with the same name.

Study these three subtraction examples.

7 books	7 ninths	$\frac{7}{9}$
2 books	2 ninths	$\frac{2}{9}$
5 books	5 ninths	$\frac{5}{9}$

In working with fractions we always write them in figures.

The big candle on Edna's birthday cake was $\frac{3}{4}$ ft. long. During the party $\frac{1}{4}$ ft. of it burned away. How long was the part of the candle that was left?

$$\frac{3}{4} - \frac{1}{4} = \frac{2}{4} = \frac{1}{2}$$

Subtract the fractions. $\frac{3}{4} - \frac{1}{4} = \frac{2}{4}$.

The simplest form for $\frac{2}{4}$ is $\frac{1}{2}$.

The part left was $\frac{1}{2}$ ft. long.

Always give a fraction in an answer in its simplest form.

Subtract, giving the answers in their simplest forms:

1. $\frac{5}{7}$	2. $\frac{3}{4}$	3. $\frac{2}{3}$	4. $\frac{7}{8}$	5. $\frac{5}{8}$	6. $\frac{4}{5}$
$\frac{2}{7}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{3}{8}$	$\frac{1}{8}$	$\frac{3}{5}$
7. $\frac{7}{8}$	8. $\frac{5}{4}$	9. $\frac{3}{8}$	10. $\frac{2}{2}$	11. $\frac{5}{9}$	12. $\frac{7}{8}$
$\frac{5}{8}$	$\frac{3}{4}$	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{4}{9}$	$\frac{1}{8}$
13. $\frac{5}{6}$	14. $\frac{4}{5}$	15. $\frac{6}{7}$	16. $\frac{5}{8}$	17. $\frac{3}{5}$	18. $\frac{5}{7}$
$\frac{1}{6}$	$\frac{1}{5}$	$\frac{3}{7}$	$\frac{3}{8}$	$\frac{2}{5}$	$\frac{1}{7}$

1. Mary's house is $\frac{7}{8}$ mi. from the school and Kate's is $\frac{3}{8}$ mi. How much farther from school does Mary live than Kate?

2. John walks $1\frac{5}{8}$ mi. in going to school and Dick walks $1\frac{3}{8}$ mi. How much farther does John walk than Dick?

3. Lee lives $2\frac{3}{4}$ mi. from the school and Joe lives $\frac{1}{4}$ mi. nearer the school on the same road. How far is Joe's house from the school?

4. Grace has $2\frac{7}{8}$ mi. to go to school. She rides $2\frac{5}{8}$ mi. on the bus. How far does Grace have to walk?

See how quickly you can do these subtractions:

5. $\frac{9}{8} - \frac{5}{8}$.
6. $\frac{7}{9} - \frac{4}{9}$.
7. $\frac{4}{5} - \frac{2}{5}$.
8. $\frac{5}{6} - \frac{1}{6}$.
9. $\frac{7}{8} - \frac{5}{8}$.
10. $\frac{2}{3} - \frac{1}{3}$.
11. $\frac{6}{7} - \frac{4}{7}$.
12. $\frac{3}{3} - \frac{2}{3}$.
13. $\frac{5}{9} - \frac{1}{9}$.
14. $5\frac{3}{4} - 2\frac{1}{4}$.
15. $4\frac{2}{3} - 1\frac{1}{3}$.
16. $9\frac{5}{8} - 7\frac{1}{8}$.
17. $6\frac{8}{9} - 3\frac{2}{9}$.
18. $9\frac{3}{8} - 5\frac{1}{8}$.
19. $8\frac{2}{5} - 4\frac{1}{5}$.
20. $3\frac{7}{8} - 1\frac{5}{8}$.
21. $7\frac{4}{9} - 6\frac{2}{9}$.
22. $8\frac{5}{8} - 7\frac{1}{8}$.
23. $2\frac{4}{7} - 1\frac{2}{7}$.
24. $6\frac{8}{9} - 3\frac{7}{9}$.
25. $7\frac{4}{5} - 5\frac{3}{5}$.
26. $3\frac{2}{6} - 2\frac{1}{6}$.
27. $9\frac{7}{8} - 6\frac{1}{8}$.
28. $5\frac{3}{5} - 4\frac{1}{5}$.
29. $8\frac{8}{9} - 6\frac{1}{9}$.
30. $8\frac{2}{3} - 5\frac{1}{3}$.
31. $6\frac{7}{8} - 2\frac{5}{8}$.

MARGARET is drinking milk to help her gain in weight. She weighed $55\frac{1}{4}$ lb. in March, and now she weighs $57\frac{1}{2}$ lb. How many pounds has she gained?

$$\begin{array}{r} 57\frac{1}{2} = 57\frac{2}{4} \\ 55\frac{1}{4} \\ \hline 2\frac{1}{4} \end{array}$$

The answer is $57\frac{1}{2} - 55\frac{1}{4}$.

First change the fractions to the same name. $\frac{1}{2} = \frac{2}{4}$.

$\frac{2}{4} - \frac{1}{4} = \frac{1}{4}$; $57 - 55 = 2$.

The difference is $2\frac{1}{4}$. Margaret has gained $2\frac{1}{4}$ lb.

---

1. Maud weighs $62\frac{1}{4}$ lb. and Lena weighs $67\frac{1}{2}$ lb. How much more does Lena weigh than Maud?

These numbers show the weights of the children on March 1 and June 1. Find how much each gained:

	March 1	June 1		March 1	June 1
2. Roy	$71\frac{1}{2}$	$73\frac{3}{4}$	5. Lee	$72\frac{1}{2}$	$74\frac{5}{8}$
3. Bob	$70\frac{1}{4}$	$72\frac{1}{2}$	6. Nan	$70\frac{1}{4}$	$72\frac{3}{8}$
4. Ida	$67\frac{3}{8}$	$69\frac{1}{2}$	7. Joe	$74\frac{3}{8}$	$75\frac{7}{8}$

Subtract, and then check by going over the work:

8. $\frac{7}{8}$	9. $\frac{5}{8}$	10. $\frac{1}{2}$	11. $7\frac{1}{4}$	12. $9\frac{1}{2}$	13. $6\frac{1}{2}$
$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{4}$	$2\frac{1}{8}$	$4\frac{1}{4}$	$1\frac{1}{8}$
14. $\frac{3}{4}$	15. $\frac{5}{8}$	16. $\frac{7}{8}$	17. $5\frac{3}{4}$	18. $8\frac{5}{8}$	19. $9\frac{7}{8}$
$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{2}$	$1\frac{5}{8}$	$3\frac{1}{2}$	$5\frac{1}{4}$

1. Mrs. Best bought 1 lb. of tea of one kind and $\frac{1}{2}$ lb. of another. How many pounds did she buy?

2. Our clock gained $\frac{1}{4}$ hr. How many minutes did it gain?

3. At the school picnic Joe ran $\frac{1}{2}$ mi. in a race. How many feet did he run?

4. An elephant weighed $1\frac{1}{2}$ T. How many pounds did it weigh?

5. Ida played $\frac{3}{4}$ hr. How many minutes was this?

6. Ned picked $\frac{1}{2}$ bu. of walnuts yesterday. How many pecks did he pick?

7. The letters in the sign on the post office are $\frac{2}{3}$ yd. high. How many feet high are they?

8. Baby Jean is $1\frac{1}{2}$ ft. tall. How many inches tall is she?

9. The "Clipper," a fast train, is $1\frac{1}{2}$ hr. late. How many minutes late is it?

10. Mrs. Hale made $\frac{1}{2}$ gal. of apple butter. How many quarts did she make?

Give the missing numbers:

11. $\frac{1}{4}$ lb. = —— oz.
12. $1\frac{1}{4}$ lb. = —— oz.
13. $\frac{1}{4}$ gal. = —— qt.
14. $\frac{1}{2}$ T. = —— lb.
15. $\frac{1}{4}$ bu. = —— pk.
16. $1\frac{1}{2}$ qt. = —— pt.
17. $\frac{1}{3}$ hr. = —— min.
18. $1\frac{1}{3}$ hr. = —— min.

1. After school Jack's mother sent him to the fruit store to buy $\frac{1}{3}$ doz. oranges. How many oranges are $\frac{1}{3}$ of 12 oranges?

2. Edna asked the man for $\frac{2}{3}$ doz. oranges. How many are $\frac{2}{3}$ of 12 oranges?

$\frac{1}{3}$ of $12 = 4$
$\frac{2}{3}$ of $12 = 2 \times 4$, or 8

3. Roy has 15 pennies. If he divides them into 3 equal piles, how many pennies will he have in each pile? How many are $\frac{1}{3}$ of 15? $\frac{2}{3}$ of 15?

4. If 4 boys divide 20 nuts equally, how many will each boy have? How many are $\frac{1}{4}$ of 20? $\frac{3}{4}$ of 20?

Give the answers:

5. $\frac{1}{4}$ of 16.	**6.** $\frac{1}{3}$ of 18.	**7.** $\frac{1}{6}$ of 12.	**8.** $\frac{1}{8}$ of 24.
$\frac{3}{4}$ of 16.	$\frac{2}{3}$ of 18.	$\frac{5}{6}$ of 12.	$\frac{5}{8}$ of 24.

Remembering the multiplication and division facts that you need, give the answers in these examples:

9. $\frac{1}{2}$ of 14.	**12.** $\frac{3}{5}$ of 20.	**15.** $\frac{1}{7}$ of 28.	**18.** $\frac{2}{3}$ of 30.
10. $\frac{1}{5}$ of 20.	**13.** $\frac{1}{6}$ of 18.	**16.** $\frac{2}{7}$ of 28.	**19.** $\frac{2}{5}$ of 15.
11. $\frac{2}{5}$ of 20.	**14.** $\frac{5}{6}$ of 18.	**17.** $\frac{5}{7}$ of 28.	**20.** $\frac{4}{5}$ of 15.

1. Mrs. Ames had 20 in. of ribbon. She said that Ann could use $\frac{1}{2}$ of it for a doll's dress. How many inches did she mean that Ann might use?

2. Fred used $\frac{1}{2}$ of a 12-cent bar of soap in washing his dog. How many cents' worth did he use?

3. John earns 40¢ an hour by mowing lawns. How much does he earn in $\frac{3}{4}$ hr.?

4. Alice needs $\frac{2}{3}$ doz. lemons for lemonade. At 60¢ a dozen, how much will the lemons cost?

5. Will gets $1.60 a day for weeding Mr. Joy's garden. How much does he earn in $\frac{1}{2}$ da.?

6. Nancy wanted a doll that cost 50¢. She had only $\frac{3}{5}$ of that amount. How many cents did she have?

7. Ned earned 80¢ last Saturday, and Joe earned $\frac{3}{8}$ as much. How much did Joe earn?

8. Jane counted the glasses of jelly for her mother. Of 24 glasses on one shelf, $\frac{1}{2}$ were marked "Apple," $\frac{1}{6}$ were marked "Plum," and $\frac{1}{3}$ were marked "Currant." How many glasses of each kind were there?

Find the cost of these things that Sue bought:

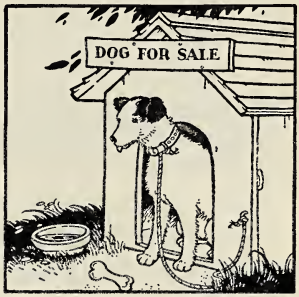
9. $\frac{1}{2}$ doz. oranges at 50¢ a dozen.

10. $\frac{1}{4}$ lb. of tea at 60¢ a pound.

11. $\frac{3}{4}$ bu. of potatoes at $1.00 a bushel.

12. $\frac{2}{3}$ lb. of walnuts at 48¢ a pound.

1. Roy wants to buy a dog that costs \$15. He has earned $\frac{4}{5}$ of what the dog costs. How much money has he earned?



2. On Nan's new checkerboard $\frac{1}{2}$ of the 64 squares are red. How many red squares are there?

3. Last year Sam raised 150 lb. of potatoes. Jim raised $\frac{2}{3}$ as much. How many pounds did Jim raise?

4. The girls are planning to make 400 paper roses for the May Day party. They have made $\frac{7}{8}$ of them. How many roses have they made?

5. One Saturday Lee husked 24 bu. of corn, and Bob husked $\frac{5}{6}$ as much. How much did Bob husk?

6. Aunt May gave Sue \$2.50 for her birthday. Sue spent $\frac{1}{2}$ of it for a doll. How much did the doll cost?

Find the answers:

7. $\frac{2}{3}$ of 180.
8. $\frac{4}{5}$ of 250.
9. $\frac{3}{8}$ of 240.
10. $\frac{5}{6}$ of 120.
11. $\frac{2}{9}$ of 189.
12. $\frac{3}{4}$ of 484.
13. $\frac{3}{7}$ of 287.
14. $\frac{2}{5}$ of 125.
15. $\frac{5}{8}$ of 248.
16. $\frac{2}{3}$ of 696.
17. $\frac{3}{5}$ of 625.
18. $\frac{7}{8}$ of 168.
19. $\frac{3}{4}$ of 840.
20. $\frac{5}{7}$ of 147.
21. $\frac{4}{9}$ of 369.

MRS. JAY bought some cloth for Nan's new dress. She paid 48¢ a yard for $2\frac{3}{4}$ yd. How much did the cloth cost?

The answer is $2\frac{3}{4} \times \$0.48$.

First find $\frac{3}{4}$ of 48. $\frac{1}{4}$ of $48 = 12$, and so $\frac{3}{4} = 3 \times 12$, or 36.

Write 36 with the 6 under the 2.

$2 \times 48 = 96$. Write 96 under 36.

Add. The sum is 132.

Place the decimal point before the cents and write the sign \$. The cloth cost \$1.32.

\$0.48
$2\frac{3}{4}$
36
96
\$1.32

1. Mrs. Jay bought $2\frac{1}{2}$ doz. buttons at 40¢ a dozen. What did the buttons cost?

Find how much Mrs. Jay had to pay when she bought cloth as follows:

2. $2\frac{1}{3}$ yd. at \$2.25.
3. $3\frac{2}{3}$ yd. at 36¢.
4. $1\frac{3}{4}$ yd. at \$1.20.
5. $5\frac{1}{2}$ yd. at 28¢.
6. $2\frac{3}{4}$ yd. at 60¢.
7. $1\frac{3}{8}$ yd. at \$2.40.

Find the answers:

8. $2\frac{1}{3} \times 30¢$.
9. $1\frac{1}{5} \times 50¢$.
10. $3\frac{1}{2} \times 40¢$.
11. $2\frac{1}{8} \times 24¢$.
12. $6\frac{2}{3} \times 18¢$.
13. $4\frac{1}{5} \times 60¢$.
14. $3\frac{2}{7} \times 28¢$.
15. $2\frac{5}{6} \times 36¢$.
16. $4\frac{1}{2} \times \$1.24$.
17. $2\frac{3}{4} \times \$1.68$.
18. $5\frac{2}{3} \times \$2.46$.
19. $3\frac{5}{8} \times \$3.20$.

Collecting Things

1. Bert has 20 American stamps, 3 French stamps, and 5 English stamps. How do you find how many stamps he has in all? How many is it?

2. Lee is collecting postcards. He has 9 packages with 20 cards in each one. How do you find how many cards he has? How many is it?

3. Nora had 37 paper dolls, but lost 15. How do you find how many she has left? How many is it?

4. Roy had 36 different kinds of rocks. He put the same number in each of 4 boxes. How do you find how many he put in each box? How many is it?

5. Betty has a scrapbook with 20 pages. Each page has spaces for 4 pictures. How do you find how many pictures she needs to fill the book? How many is it?

6. Make up a problem and tell whether you add, subtract, multiply, or divide to get the answer.

Study the question asked in each of these problems and tell how you would go to work to answer it. Then find the answer and check it:

1. Peter raised 10 bu. of potatoes. How many 2-bushel bags did they fill?

2. Peter sold 5 bags of potatoes at $3 a bag. How much money did he get for them?

3. There were 25 words in a spelling test. Ann spelled 20 of them correctly. How many words did she miss?

4. Ann missed 5 words in a spelling test. She studied each one 3 min. How long did she study?

5. Carl bought 3 balls at 15¢ apiece. How much did the balls cost in all?

6. Carl spent 45¢ for balls. How much change should he receive from 50¢?

7. Kate has 10 paper dolls, Sue has 14, and Ada has 12. How many paper dolls have they in all?

8. The girls divided 36 paper dolls equally into 2 piles. How many dolls were there in each pile?

9. Mother pays Dora 20¢ a week and Grace 30¢ a week for helping with the housework. How much does she pay both girls each week?

10. Mother pays the girls 50¢ a week. How much does she pay them in 4 wk.?

To solve each of these problems, you will first have to ask yourself a question different from the one asked at the end of the problem. Find and answer this question, and then solve the problem:

1. Peter raised 10 bu. of potatoes and sold them in 2-bushel bags at $3 a bag. How much money did he receive for all the potatoes?

2. Ann had 25 words in a spelling test. She spelled 20 words correctly. Then she studied each misspelled word 3 min. How long did she study?

3. Carl bought 3 balls at 15¢ apiece and gave the clerk 50¢. How much change should he receive?

4. Kate has 10 paper dolls, Sue has 14, and Ada has 12. The girls divided all their dolls equally into 2 piles. How many dolls were there in each pile?

5. Mother pays Dora 20¢ a week and Grace 30¢ a week for helping with the housework. How much does she pay both girls in 4 wk.?

6. Paul had $1. He bought 2 fishpoles at 40¢ each. How much money did he have left?

7. Bob sold 30 papers on Monday and 20 papers on Tuesday. At 3¢ each, how much did he receive for all the papers?

8. Ida bought two 5-cent stamps and ten 2-cent stamps. How much did they cost in all?

1. The 12 boys and 16 girls in Miss Boyd's room gave a play. Each pupil was allowed to invite 3 visitors to come to the play. How many visitors could they invite in all?

2. They made cardboard dolls and animals for the actors. Each of the 12 boys made 2 animals and each of the 16 girls made 2 dolls. How many actors were there in all?

3. It took $\frac{1}{2}$ of the 12 boys to move the actors on the stage and $\frac{1}{2}$ of the 16 girls to say the words. How many children took part in the play?

4. They invited 28 mothers and 28 fathers to come to the play. Only $\frac{1}{2}$ of the mothers and $\frac{1}{4}$ of the fathers came. How many parents came?

5. Each of the 28 pupils gave 2¢ to pay for the cardboard to make the actors. The cardboard cost 40¢. How much money did they have left over?

Review Questions

1. What is the sum of $1\frac{5}{8}$ and $2\frac{1}{4}$?

2. What is the difference between $7\frac{3}{4}$ and $3\frac{1}{2}$?

3. What is meant by the perimeter of a square?

4. How do you find the area of a rectangle?

5. How do you check an addition example?

6. How do you check a subtraction example?

7. What is the difference between long division and short division?

8. How do you check an example in division when there is a remainder?

9. How many questions do you need to answer in a two-step problem?

Give the missing numbers:

10. 1 bu. = —— pk.
11. 1 T. = —— lb.
12. 1 ft. = —— in.
13. 1 hr. = —— min.
14. 1 gal. = —— qt.
15. 1 lb. = —— oz.

Copy, writing the correct signs in the blank spaces:

16. 5 —— 8 = 13.
17. 7 —— 7 = 49.
18. 64 —— 8 = 8.
19. 14 —— 10 = 24.
20. 16 —— 9 = 7.
21. 20 —— 16 = 4.
22. 24 —— 9 = 33.
23. 18 —— 5 = 23.

1. The peanut crop in the United States is worth about $100,000,000 a year. In 5 yr., how many dollars' worth of peanuts are grown?

2. Peanuts were first widely sold in 1870. What year is it now? How many years ago was 1870?

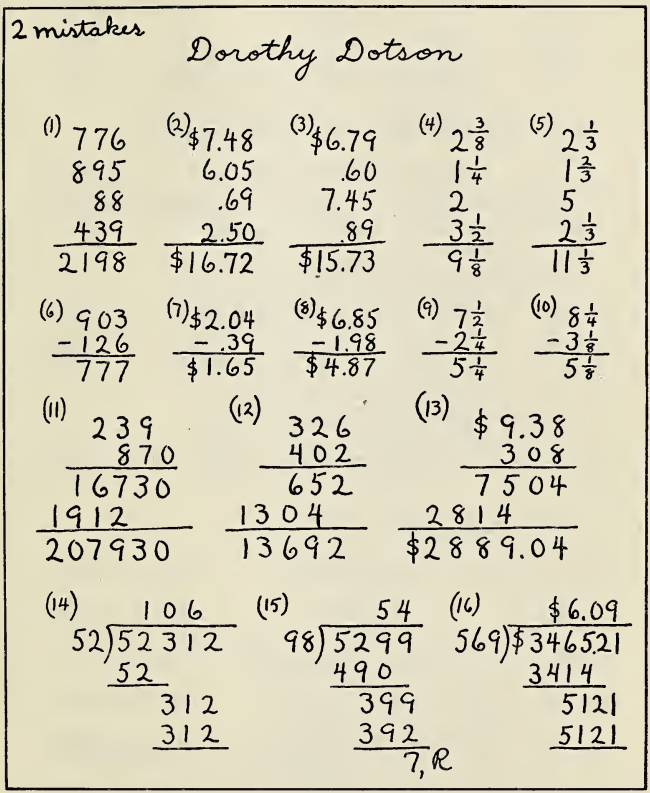
3. Mr. Dole raised 245 bu. of peanuts from a field that contained 5 acres of land. What was the average number of bushels per acre?

4. One kind of peanut is $\frac{1}{2}$ oil. How many pounds of oil are there in 100 lb. of these peanuts?

5. From 8 peanut vines of his own George Dole had 282 peanuts. Find the average number to a vine, writing the remainder in the form of a fraction.

6. Last year Mr. Mann had 2 acres of peanuts which averaged 45 bu. to the acre. This year he averaged $\frac{1}{3}$ as many. How many bushels of peanuts did he have this year?

THIS is Dorothy Dotson's paper. George Welch says that she has made 2 mistakes in it. Dorothy cannot find either one of the mistakes. See if you can.



See how quickly you can add these:

1.	2.	3.	4.	5.
20	2	9	150	279
14	11	5	9	854
12	5	16	31	517
31	20	98	200	369

Subtract, and then check your work:

6.	7.	8.	9.	10.
74	25	902	723	1200
9	8	78	594	932

Multiply, and then check your work:

11.	12.	13.	14.	15.
95	79	798	605	270
87	60	469	609	890

Divide, and then check your work:

16. $3\overline{)690}$ 17. $4\overline{)428}$ 18. $21\overline{)609}$ 19. $15\overline{)435}$

Find the answers:

20. $\frac{2}{3}+\frac{2}{3}$.	25. $\frac{7}{8}-\frac{3}{8}$.	30. $\frac{1}{3}$ of 60.
21. $\frac{1}{2}+\frac{3}{8}$.	26. $\frac{3}{4}-\frac{1}{2}$.	31. $\frac{2}{3}$ of 150.
22. $\frac{1}{4}+\frac{7}{8}$.	27. $\frac{7}{8}-\frac{1}{4}$.	32. $\frac{1}{2}$ of 48.
23. $2\frac{1}{2}+1\frac{3}{4}$.	28. $5\frac{1}{2}-1\frac{1}{4}$.	33. $\frac{3}{4}$ of 80.
24. $3\frac{3}{8}+1\frac{1}{4}$.	29. $6\frac{7}{8}-2\frac{1}{2}$.	34. $\frac{3}{8}$ of 320.

TABLES FOR REFERENCE

Length

12 inches (in.) = 1 foot (ft.)
3 feet or 36 inches = 1 yard (yd.)
$5\frac{1}{2}$ yards or $16\frac{1}{2}$ feet = 1 rod (rd.)
320 rods or 5280 feet = 1 mile (mi.)

Square Measure

144 square inches (sq. in.) = 1 square foot (sq. ft.)
9 square feet = 1 square yard (sq. yd.)

Weight

16 ounces (oz.) = 1 pound (lb.)
2000 pounds = 1 ton (T.)

Liquid Measure

2 cups (c.) = 1 pint (pt.)
2 pints = 1 quart (qt.)
4 quarts = 1 gallon (gal.)

Dry Measure

2 pints (pt.) = 1 quart (qt.)
8 quarts = 1 peck (pk.)
4 pecks = 1 bushel (bu.)

Time

60 seconds (sec.) = 1 minute (min.)
60 minutes = 1 hour (hr.)
24 hours = 1 day (da.)
7 days = 1 week (wk.)
12 months (mo.) or 365 days = 1 year (yr.)
366 days = 1 leap year

INDEX

	PAGE
Addition	7
carrying in	65, 85, 87, 98, 101
checking	90
column	47, 50
by endings	57, 65
of fractions	455
of larger numbers	285
of mixed numbers	459
of money	103
sign for	18
sums to 10	5–12
sums 10 to 18	13–22
sums above 20	50
zero in	19, 92, 93
100 facts in 7, 9, 11, 13, 15,	17, 19
A.M.	330
Answer, in addition	7
checking 90, 113, 132, 197,	304, 323, 388
in division	196
in multiplication	132
in subtraction	30
zero in	43, 92, 325, 326, 394
Area, measurement of	450
Average	343
Borrowing	76, 109, 117, 118
from tens	76, 108, 109
from hundreds	117, 118
from tens and hundreds	118
Bushel	238, 334, 481
Calendar	223, 329
Carrying, in addition	65, 85, 87, 91, 98, 99, 101
with decimal point	144
in long division	389
in multiplication	139, 160
in short division	205, 208
Cent	23, 102
as a decimal	102
sign for	23
Change, making	246
Check, in addition	90
in long division	362, 388
in multiplication	132, 304
with remainders	323, 388
in short division	197, 323, 362
in subtraction	113
Circle	252
Clock	231–233
Coins	23
Columns, in addition	47, 52, 103
with decimals	103
writing numbers in	83
Comparison of fractions	181, 457
Counting, by dozens	184
by endings	3
by 1's	1
by 2's	4
by 5's	4
by 10's	4
by large groups	193, 258, 371
Cupful	179, 335, 481

PAGE

Day 223
  hours in a . . 223, 233, 330, 481
Days in a week . . 223, 329, 481
Decimal point 102
Degree, of temperature . . . 445
Denominator 454
Difference 30, 287
Dime 23
Distance, measures of . . . 447
Dividend 197, 323
  partial 356
Division 147, 148
  by 1 to 12 147–296
  carrying in 205, 208
  check of . . 197, 323, 362, 388
  long 355, 441
  long division by 12 363
  of money . . 210, 328, 387, 443
  remainder in 203
  short 148, 195
  sign of 147, 148
  subtraction needed for 201, 203, 220, 229
  of three-figure numbers . . 195
  by two-figure numbers . . 355
  by three-figure numbers . . 441
  zero in 198, 209, 290, 293, 325, 326, 327, 394, 396, 420
  90 facts of 121–169, 198, 215–243, 289–296
Divisor 197, 323
Dollar, sign for 23
Dollars and cents, addition of 103
  division of 210, 212, 328
  multiplication of . 144, 307, 381
  subtraction of 107, 109
  writing 23, 102
Dozen 184
Drawing, scale 452
Drill, *see* Practice

PAGE

Eighth 237
Endings, in addition . . . 57, 65
  counting by 3
  in division 364, 410, 412, 416, 417
  in multiplication 134
  in subtraction 73
  zero 92, 112
Equality, sign of 18

Feet 174
  in a mile 447, 481
  in a yard 174, 481
Fifth 186
Foot 174
  square 450, 481
Fourth 180
Fractions, addition of 455
  in averages 345
  changing 456, 461
  comparison of 181, 457
  half 176
  improper 456
  lowest terms of 460
  multiplication by 469
  proper 456
  reduction of 460
  remainders as 340
  simplest forms of 460
  subtraction of 465
  terms of 454

Gallon 179
  quarts in a 335, 481
Games, addition . . 12, 47, 95, 261
  multiplication 277
  subtraction . . . 75, 201, 269

Half 176
Half dollar 23
Height 175

PAGE

Hour 223, 233, 330, 481
minutes in an 233, 481
Hours in a day 330, 481
Hundreds' place 81
borrowing from . . . 117, 118
carrying to 91, 101

Inch 173, 174, 336, 481
square 451, 481
Inches, in a foot 174, 336
in a yard 174, 336

Length, measures of 173, 336, 447, 481
Liquids, measures of . . 179, 335

Measures, of area. . . . 450, 481
dry 238, 334, 481
linear 173, 336, 447, 481
liquid 179, 335, 481
of temperature 445
of time . . 223, 233, 329, 481
of weight 182, 337, 481
Mile 447
feet in a 447, 481
rods in a 447, 481
Million 372, 427
Minuend 287
Minus sign 40
Minute 233, 330, 481
seconds in a 330, 481
Minutes in an hour . . 233, 481
Mixed numbers 459
addition of 459
multiplication by 472
subtraction of 467
Money, changing 246
common coins 23
ways of writing . 23, 102, 144
Month 223

PAGE

Months, names of the . . . 223
in a year 223, 329, 481
Multiplicand 303
Multiplication 119
by 1–12 119–295
by 100 291
carrying in 139, 160
checking 132, 304
easy methods of . . . 407, 433
by fractions 469
by a mixed number . . . 472
with money . 144, 307, 381, 431
order of 126, 302
sign for 120
terms in 303
of a two-figure number 131, 299
of a three-figure number 135, 306
two-figure 299
three-figure . . . 310, 380, 431
zero in . 134, 289, 291, 383, 385
100 facts of 121–165, 215–243, 289–296
Multiplier 303

Nickel 23
Ninth 248
Numbers, even 4
five-figure 193, 258, 285
four-figure 193, 257
larger . . 193, 257, 313, 371, 427
mixed 459
odd 4
place value in . . . 24, 81, 193
reading and writing 3, 24, 81, 193, 257, 313, 371, 427
representing money . . 23, 102
three-figure 81
two-figure 24
Numerals, Roman . 231, 316, 374
Numerator 454

PAGE

Ones' place 24, 81, 427
carrying from . 65, 85, 98, 101
Order in multiplication . 123, 302
Ounces 182
in a pound 182, 337, 481

Partial dividend 356
Partial products 303
Peck 238
quarts in a . . . 238, 334, 481
Pecks in a bushel . . . 238, 481
Penny 23
Perimeter 448
Pint 179
in dry measure . 238, 334, 481
in liquid measure 179, 335, 481
Place value . . . 24, 81, 102, 307
Plus sign 18
P.M. 330
Point, decimal 102
Pound 182
ounces in a 182, 481
Pounds in a ton 337, 481
Practice
in addition 12, 18, 48, 59, 61, 66, 67, 69, 88, 97, 154, 259, 262, 263, 266, 267, 286, 347, 424
in carrying 139, 160, 161, 167, 168, 218, 227, 236, 244
in long division. . . . 368, 444
mixed 44, 64, 130, 137, 145, 153, 156, 172, 190, 234, 254, 312, 333, 348, 361, 370, 375, 376, 398, 415, 425, 429, 480
in multiplication 138, 143, 146, 160, 161, 167, 168, 187, 218, 227, 236, 244, 275, 300, 405

PAGE

Practice
and problems 71, 86, 162, 163, 164, 169, 222, 230, 239, 249, 250, 278, 352, 391, 406, 419, 432, 463
in short division 188, 191, 204, 220, 229, 240, 251, 281, 318, 320, 322, 353, 409, 435
in subtraction 33, 40, 77, 111, 114, 116, 155, 271, 274, 288
Problem scales . 298, 350, 414, 439
Problems, solution of 45, 211, 399, 473, 474, 475
without numbers 213, 399, 403
Problems about
animals 6, 8, 10, 20, 25, 41, 46, 115, 128, 185, 265, 273, 297, 338, 401, 402, 434, 442, 462
circuses . . 13, 80, 257, 264, 273
clocks and calendars 224, 232, 329, 330, 331, 332, 382
clothes 16, 242, 418
collecting things . . . 28, 473
earning money . . 54, 214, 404
farms 78, 185, 297, 301, 338, 354, 365, 392, 402, 413, 434
food 14, 26, 50, 51, 72, 89, 94, 119, 123, 133, 166, 241, 324, 365, 453
games 28, 47, 261, 272, 277, 282, 346, 366
handwork 16, 29, 60, 106, 252, 280, 321, 408, 449
holidays and vacation 55, 89, 96, 106, 200, 207, 221, 224, 268, 313, 397, 401, 404
indoor play 5, 28, 60, 125, 476

PAGE

Problems about
the mail 200, 276, 331
maps, distances, and travel
349,373,378,438,442,464,466
measures and weights 122,
175, 179, 182, 183, 184,
192, 221, 223, 232, 238,
273, 334, 335, 336, 337,
338, 408, 445, 446, 447,
450, 451, 468, 474
modern inventions 214, 480, 431
money 70, 84, 108, 202, 212,
246, 400, 404
outdoor play 34, 38, 46,
245, 272, 346, 366, 436, 462
parties 241, 422
picnics 123, 170, 395
plants and crops 20, 78, 142,
319,354,365,367,392,413, 479
saving money 214, 377
school 36, 68, 98, 278, 309,
377, 395, 476
stores 14, 72, 94, 100, 119,
142, 246, 324, 382, 397, 418
toys 22, 34, 68, 84, 103,
106, 110, 159, 280, 342
Product 132, 303
partial 303

Quart 179
pints in a 179, 238, 334, 335, 481
Quarts, in a gallon . 179, 335, 481
in a peck 238, 334, 481
Quarter, of a dollar 23
as a fraction 332
Quotient 196, 323
zero in a 325, 394, 396

Rectangle 252, 449, 450
Reduction of fractions . . . 460

PAGE

Remainder, in short division 203, 317
fractional 340
in long division 388
in subtraction 30
Reversals 126, 302
Rod 447
feet in a 447, 481
yards in a 447, 481
Rods in a mile 447, 481

Scale drawing 452
Seconds in a minute . . 330, 481
Seventh 228
Shapes, geometric . . . 252, 449
Sign for, addition 18
cent 23
degree 445
division 147, 148
dollar 23
equality 18
multiplication 120
subtraction 40
Sixth 219
Square 252, 449, 450
Square foot 450, 481
Square inch 451, 481
Subtraction 27
borrowing from tens . 76, 108
borrowing from hundreds . 117
borrowing from tens and
hundreds 118
checking 113, 287
by endings. 73
of fractions 465
of large numbers 287
of mixed numbers 467
of money 107
of numbers to 18 . . . 33–43
one-figure 25–32
100 facts in . . . 27, 30, 35, 37

PAGE

Subtraction
  sign for 40
  two-column 55
  zero in 42, 112
Subtrahend 287
Sum 7

Tables of measures, dry 238, 334, 481
  linear 174, 336, 447, 481
  liquid 179, 335, 481
  square 481
  time . . 223, 233, 329, 330, 481
  weight 182, 337, 481
Tables of multiplication, 2's . 121
  3's 124
  4's 158
  5's 165, 186
  6's 216
  7's 225
  8's 235
  9's 243
  10's 289
  11's 294
  12's 295
Temperature, measurement of 445
Tens' place 24, 81
  borrowing from . . . 76, 108
  carrying from 99
  carrying to . 65, 85, 87, 98, 101
Terms of a fraction 454
Tests, diagnostic . . 259, 267, 271, 279, 351, 375, 379, 405
  inventory 63, 64, 129, 130, 189–192, 253–255, 311, 312, 369, 370, 423–426, 477, 480
  speed . 145, 188, 259, 262, 263, 270, 274, 351, 376, 429

PAGE

Thermometer 445
Third 178
Thousands' place . . . 193, 427
Time, measures of . 223, 329, 330
  telling 232
Ton 337, 481
Triangle 252

Week 223, 329
  days of the 223
  days in a 223, 481
Weeks, in a month 223
  in a year 329
Weight, tables of . . 182, 337, 481

Yard 174
  feet in a 174, 336, 481
  inches in a . . . 174, 336, 481
Yards in a rod 447, 481
Year 223
  days in a 329
  months of the 223

Zero 19
  in addition 19, 92, 93
  in answers 43, 92
  before a decimal point . . 104
  in division . 198, 209, 290, 293, 325, 326, 327, 394, 396, 420
  final, in subtraction . . . 112
  final, in sum 92
  in multiplication 134, 289, 291, 383, 385
  in tens' place in sum . . . 93
  in quotient 325, 326, 327, 394, 396
  reading 314
  in subtraction . . . 42, 43, 112
  in sum 92, 93
  in temperature 445

ANSWERS

Page 8. 1. 5. 2. 10. 3. 7. 4. 10. 5. 7. 6. 7. 7. 6. 8. 8. 9. 9. 10. 9. 11. 6. 12. 10. 13. 9.

Page 10. 1. 10. 2. 7. 3. 10. 4. 9. 5. 9. 6. 7. 7. 6. 8. 9. 9. 9. 10. 8. 11. 10. 12. 3. 13. 8. 14. 10.

Page 12. 1. 2; 6; 5; 8; 3; 6; 4; 7; 10. 2. 6; 5; 7; 6; 8; 10; 8; 10; 10. 3. 8; 4; 6; 9; 4; 9; 7; 10; 10. 4. 5; 8; 7; 9; 7; 9; 8; 9; 10. 5. 3; 9; 7; 9; 5; 8; 9; 10; 10.

Page 13. 1. 15. 2. 13. 3. 16. 4. 11. 5. 12.

Page 14. 1. 12 candy canes. 2. 11. 3. 12 mints. 4. 13. 5. 15 rolls. 6. 13 beans. 7. 12 bars. 8. 17. 9. 13. 10. 11. 11. 15. 12. 11 cents. 13. 13. 14. 12. 15. 12 cents. 16. 14. 17. 17.

Page 16. 1. 11. 2. 15. 3. 11. 4. 12. 5. 14. 6. 11. 7. 16. 8. 14. 9. 11. 10. 14. 11. 13. 12. 18. 13. 13 blocks. 14. 15.

Page 18. 1. 13; 12; 13; 12; 13; 11; 15; 11; 12. 2. 14; 14; 16; 13; 14; 11; 17; 12; 15. 3. 16; 14; 13; 11; 14; 12; 16; 11; 12. 4. 15; 18; 13; 11; 12; 15; 11; 17; 11.

Page 20. 1. 12. 2. 14. 3. 11. 4. 17. 5. 12. 6. 16. 7. 11. 8. 12. 9. 14. 10. 7. 11. 11. 12. 13. 13. 10. 14. 15. 15. 10. 16. 17.

Page 22. 1. 13 cents. 2. 9 dollars. 3. 16. 4. 14 cents. 5. 11 cents. 6. 15 cents. 7. 13 cents. 8. 16 cents.

Page 24. 21. 45. 22. 80. 23. 70. 24. 31. 25. 10. 26. 99.

Page 25. 1. 3. 2. 3. 3. 3. 4. 3. 5. 8. 6. 5. 7. 5.

Page 26. 1. 5. 2. 5. 3. 7. 4. 7. 5. 6. 6. 6. 7. 4. 8. 4. 9. 7. 10. 6. 11. 1. 12. 3. 13. 5. 14. 5. 15. 3. 16. 3. 17. 4.

Page 27. 3. 5; 2; 1; 3; 2; 2; 5; 1; 7. 4. 7; 1; 1; 3; 1; 3; 6; 4; 4.

Page 28. 1. 3. 2. 3. 3. 3. 4. 3. 5. 2. 6. 2; 2. 7. 4. 8. 4. 9. 6. 10. 6.

Page 29. 1. 4. 2. 7. 3. 3. 4. 3. 5. 3. 6. 4¢. 7. 4. 8. 4¢. 9. $2.

Page 30. 4. 2; 3; 3; 4; 2; 1; 5; 8; 1. 5. 4; 1; 2; 5; 3; 1; 4; 3; 2.

Page 31. 1. 6. 2. 2. 3. $5. 5. 1. 6. 4¢. 7. 2. 8. 2 feet. 10. 3 buttons; 3¢. 11. 4. 12. 7¢. 13. 1 year. 14. 5. 15. 5. 16. 2. 17. $3. 18. 3.

Page 33. 1. 1; 3; 2; 5; 4; 2; 4; 6; 3. 2. 4; 1; 6; 1; 5; 2; 7; 1; 2. 3. 8; 3; 5; 4; 3; 2; 5; 1; 3. 4. 7; 1; 2; 6; 3; 2; 1; 4; 1.

Page 34. 1. 7. 2. 5¢. 3. 8 feet. 4. 9 feet. 5. 6¢. 6. 9. 7. 7. 8. 6 minutes. 9. 6¢. 10. 3 blocks. 11. 8¢. 12. 8. 13. 7 minutes. 14. 9. 15. 9¢.

Page 36. 1. 2 hours. 2. 5. 3. 4 minutes. 4. 3. 5. 8 minutes. 6. 6 blocks. 7. 8. 8. 6¢. 9. 8 minutes. 10. 9¢. 11. 7¢. 12. 9 minutes. 13. 9. 14. 9¢. 15. 8 minutes. 16. 4¢.

Page 38. 1. 9. 2. 5. 3. 7. 4. 4. 5. 5. 6. 8. 7. 7. 8. 8. 9. 8. 10. 6. 11. 5 minutes. 12. 7. 13. 8. 14. 9 minutes. 15. 9 minutes. 16. 7.

Page 40. 1. 5; 6; 9; 2; 7; 9; 7; 1; 8. 2. 6; 7; 9; 8; 6; 7; 8; 5; 5. 3. 9; 8; 5; 7; 6; 4; 9; 7; 4. 4. 9; 8; 4; 8; 2; 8; 7; 4; 3. 5. 6; 9; 6; 9; 3; 9; 8; 5; 3.

Page 41. 1. 5. 2. 8. 3. 9. 4. 6. 5. 8. 6. 6. 7. 6.

Page 42. 1. 6. 2. 9. 3. 4. 4. 7.

Page 43. 1. 0. 2. 0. 3. 0. 4. 0. 5. 0. 6. 0.

Page 44. 9. 8. 10. 16. 11. 8. 12. 11. 13. 3. 14. 13. 15. 8. 16. 8. 17. 7. 18. 15. 19. 9. 20. 14. 21. 17. 22. 7. 23. 12. 24. 5. 25. 16. 26. 7. 27. 4. 28. 16. 29. 6. 30. 15. 31. 9. 32. 14. 33. 9.

Page 46. 1. 13. 2. 0. 3. 12. 4. 17. 5. 7. 6. 14. 7. 12. 8. 5. 9. 15. 10. 8. 11. 15. 12. 4.

Page 47. 6; 5; 6; 8; 9; 5; 8; Roy.

Page 48. 1. 9; 8; 9; 7; 7; 8; 4; 8; 8. 2. 7; 9; 9; 8; 8; 3; 7; 9; 9. 3. 3; 8; 9; 7; 9; 6; 5; 8; 7. 4. 9; 9; 9; 9; 8; 9; 6; 9; 6. 5. 8; 7; 9; 9; 8; 6; 9; 7; 9. 6. 9; 8; 9; 9; 9; 9; 9; 9; 7.

Page 49. 1. 9. 2. 8. 3. 8¢. 4. 9. 5. 9¢. 6. 9. 7. 8. 8. 7. 9. 8. 10. 8.

Page 50. 1. 13. 2. 15. 3. 19. 4. 23. 5. 25. 6. 26.

Page 51. 1. 17¢. 2. 17¢. 3. 13¢. 4. 16¢. 5. 21¢. 6. 27¢. 7. 19¢. 8. 24¢. 9. 15¢. 10. 18¢. 11. 16¢. 12. 79; 80; 78; 98; 97; 56; 99; 87. 13. 89; 76; 99; 69; 78; 88; 68; 47.

Page 52. 1. 97. 2. 79. 3. 89. 4. 98. 5. 98. 6. 96. 7. 76. 8. 88. 9. 86. 10. 79. 11. 47. 12. 98.

Page 53. 1. 79. 2. 36. 3. 89. 4. 79. 5. 68. 6. 78. 7. 89. 8. 59. 9. 78. 10. 98. 11. 88. 12. 99.

Page 54. 1. 99. 2. 99. 3. 58. 4. 88. 5. 69. 6. 77. 7. 79. 8. 78. 9. 79. 10. 99. 11. 88. 12. 98.

Page 56. 1. 19. 2. 53. 3. 78¢. 4. 10 pounds. 5. 36. 6. 24. 7. 11. 8. 60. 9. 40. 10. 20.

Page 57. 2. 5. 5. 8; 18; 28; 58. 6. 9; 19; 39; 29. 7. 16; 46; 36; 26. 8. 9; 29; 39; 19. 9. 14; 34; 94; 24. 10. 29; 69; 19; 39.

Page 58. 1. 17; 47. 2. 18; 38. 3. 19; 29. 4. 25; 35. 5. 15; 12; 15; 14; 18; 15; 18; 14; 19. 6. 17; 13; 16; 17; 13; 14; 13; 16; 11. 7. 16; 17; 12; 15; 17; 18; 18; 17; 19. 8. 18; 19; 16; 16; 16; 19; 17; 18; 19.

Page 59. 1. 38; 38; 19; 24; 35; 28; 31; 26; 37. 2. 27; 26; 37; 28; 27; 28; 36; 22; 24. 3. 27; 22; 39; 39; 28; 33; 29; 38; 25. 4. 29; 23; 29; 35; 32; 36; 34; 27; 29. 5. 28; 38; 39; 37; 25; 35; 25; 26; 34. 6. 27; 39; 28; 38; 29; 33; 37; 32; 37. 7. 38; 39; 37; 34; 28; 26; 36; 21; 39. 8. 36; 26; 39; 28; 38; 37; 26; 25; 36. 9. 23; 27; 24; 29; 39; 36; 33; 23; 35.

Page 60. 1. 28. 2. 28. 3. 18. 4. 19. 5. 19¢. 6. 29. 7. 29. 8. 29 pictures.

Page 61. 1. 15; 12; 15; 14; 19; 14; 18; 15. 2. 19; 17; 13; 16; 17; 13; 14; 13. 3. 16; 11; 17; 17; 17; 19; 12; 19. 4. 18; 18; 19; 18; 19; 16; 18; 16. 5. 19; 18; 18; 19; 15; 19; 17; 14. 6. 18; 18; 19; 19; 18; 19; 19; 18.

Page 62. 1. 12. 2. 16. 3. 17. 4. 16. 5. 14. 6. 11. 7. 18. 8. 18. 9. 19. 10. 16. 11. 19.

Page 63. 2. 4 + 5. 4. Sum; difference or remainder. 5. 7. 7. 5. 8. 6. 9. 9. 10. 4; 6; 9. 11. 2 dimes. 12. 13; 16; 7; 7; 12; 8; 14; 11. 13. 9; 14; 12; 9; 13; 15; 7; 9. 14. 12; 11; 8; 9; 15; 7; 13; 9.

Page 64. 1. 13. 2. 17. 3. 11. 4. 13. 5. 15. 6. 11. 7. 8. 8. 7. 9. 8. 10. 8. 11. 7. 12. 9. 13. 11. 14. 10. 15. 7. 16. 8. 17. 12. 18. 4. 19. 16. 20. 7. 21. 8. 22. 11. 23. 6. 24. 14. 25. 88. 26. 88. 27. 24. 28. 90. 29. 79. 30. 67. 31. 24. 32. 55. 33. 45. 34. 32. 35. 23. 36. 40. 37. 82. 38. 27. 39. 60. 40. 51. 41. 17. 42. 20.

Page 65. 1. 24. 2. 34. 3. 64. 4. 26. 5. 24. 6. 32. 7. 47. 8. 57. 9. 50. 10. 40. 11. 40. 12. 41.

Page 66. 1. 22; 20; 22; 31; 34; 34; 32; 33; 23. 2. 20; 24; 21; 32; 30; 31; 30; 30; 33. 3. 20; 24; 26; 32; 35; 33; 30; 31; 36. 4. 20; 21; 20; 35; 30; 34; 33; 36; 31. 5. 21; 22; 23; 32; 36; 31; 33; 35; 38. 6. 21; 21; 23; 30; 31; 34; 37; 37; 31. 7. 20; 25; 21; 20; 20; 27; 23; 22; 30. 8. 24; 21; 20; 22; 25; 22; 25; 26; 30. 9. 27; 30; 21; 23; 28; 32; 31; 33; 35.

Page 67. 1. 22; 25; 20; 26; 23; 21; 24. 2. 20; 23; 22; 25; 21; 24; 16. 3. 21; 24; 20; 27; 22; 26; 25; 28. 4. 25; 22; 27; 20; 23; 26; 24; 21. 5. 20; 21; 24; 23; 21; 21; 23; 23. 6. 21; 20; 21; 22; 24; 23; 20; 21. 7. 22; 25; 22; 23; 22; 21; 20; 20. 8. 24; 20; 20; 21; 26; 20; 25; 22. 9. 24; 21; 25; 22; 26; 27; 20; 22.

Page 68. 1. 20. 2. 18. 3. 20. 4. 21. 5. 20.

Page 69. 1. 25; 27; 28; 22; 28; 28; 27; 29. 2. 26; 28; 29; 29; 29; 28; 27; 24. 3. 23; 22; 24; 27; 24; 26; 25; 22. 4. 30; 31; 32; 30; 31; 35; 32; 35. 5. 33; 33; 31; 32; 31; 28; 31; 32.

Page 70. 1. 37¢. 2. 33¢. 3. 38¢. 4. 42¢. 5. 41¢. 6. 55¢. 7. 62¢. 8. 40¢. 9. 52. 10. 50. 11. 55. 12. 73. 13. 51. 14. 83.

Page 71. 1. 90¢. 2. 50¢. 3. 45; 60; 53; 66; 77; 66; 84; 93. 4. 71; 52; 47; 53; 59; 60; 61; 67. 5. 74; 56; 48; 77; 50; 65; 61; 75. 6. 68; 63; 61; 85; 57; 57; 46; 78.

Page 72. 1. 39. 2. 41. 3. 32. 4. 54. 5. 42.

Page 74. 1. 22. 2. 32¢. 3. 41. 4. 24. 5. 34. 6. 21. 7. 40¢. 8. 10. 9. 33. 10. 21. 11. 35. 12. 20 years.

Page 76. 1. 1; 2; 3; 4. 2. 1; 2; 3; 4. 3. 5; 15; 25; 65. 4. 8; 58; 18; 38. 5. 7; 27; 37; 57. 6. 5; 45; 15; 75.

Page 77. 1. 4; 14; 24; 34. 2. 7; 17; 27; 37. 3. 8; 18; 28; 38. 4. 5; 25; 45; 75. 5. 5. 6. 9. 7. 8. 8. 9. 9. 6. 10. 8. 11. 9. 12. 7. 13. 3. 14. 8. 15. 4. 16. 8. 17. 3. 18. 2. 19. 5. 20. 7. 21. 1. 22. 6. 23. 9. 24. 6. 25. 7. 26. 8. 27. 4. 28. 9. 29. 9; 29; 6; 17; 26; 17; 28; 39. 30. 15; 29; 9; 18; 26; 14; 39; 22. 31. 28; 36; 15; 57; 68; 48; 15; 33.

Page 78. 1. 69. 2. 12. 3. 12. 4. 29. 5. 27. 6. 20¢. 7. 85 minutes. 8. 35 minutes. 9. 58. 10. 37. 11. 17. 12. 23. 13. 9. 14. 17.

Page 80. 1. 12. 2. 16. 3. 9. 4. 17. 5. 29. 6. 17. 7. 23.

Page 82. 22. Four hundred eight. 23. Four hundred eighty. 24. Eight hundred four. 25. Eight hundred forty. 26. Nine hundred. 27. 57. 28. 75. 29. 99. 30. 200. 31. 601. 32. 909.

Page 84. 13. 25¢. 14. 56¢. 15. 15¢. 16. 13¢. 17. 16¢.

Page 85. 2. 53. 3. 61.

Page 86. 1. 52¢. 2. 81. 3. 81 cookies. 4. 91 minutes. 5. 53. 6. 71. 7. 63. 8. 95. 9. 72. 10. 81. 11. 81. 12. 91. 13. 52. 14. 93. 15. 41. 16. 74. 17. 66. 18. 93. 19. 82. 20. 84. 21. 53. 22. 73. 23. 97. 24. 95. 25. 97. 26. 74. 27. 88. 28. 96. 29. 94. 30. 82. 31. 96. 32. 55. 33. 63. 34. 44. 35. 95.

Page 87. 1. 91. 2. 91. 3. 92. 4. 91. 5. 92. 6. 91. 7. 81. 8. 95. 9. 81. 10. 89. 11. 65. 12. 92.

Page 88. 1. 95. 2. 62. 3. 97. 4. 96. 5. 98. 6. 89. 7. 81. 8. 66. 9. 94. 10. 88. 11. 93. 12. 69. 13. 72. 14. 93. 15. 91. 16. 82. 17. 93. 18. 91. 19. 82. 20. 95. 21. 81. 22. 81. 23. 91. 24. 99. 25. 95. 26. 92. 27. 87. 28. 76. 29. 97. 30. 73.

Page 89. 1. 35. 2. 42. 3. 51. 4. 21. 5. 91.

Page 90. 1. 99. 2. 87. 3. 94. 4. 91. 5. 83. 6. 91.

Page 91. 1. 112. 2. 116. 3. 114. 4. 154. 5. 133. 6. 162. 7. 172. 8. 251. 9. 232. 10. 275. 11. 111. 12. 236. 13. 181. 14. 125. 15. 157. 16. 216. 17. 215. 18. 223. 19. 165. 20. 134. 21. 132. 22. 135. 23. 155. 24. 174.

Page 92. 1. 50. 2. 70. 3. 140. 4. 110. 5. 190. 6. 80. 7. 180. 8. 180. 9. 310. 10. 230. 11. 230. 12. 230. 13. 160. 14. 110.

Page 93. 1. 103. 2. 103. 3. 101. 4. 105. 5. 107. 6. 104. 7. 109. 8. 109. 9. 108. 10. 203. 11. 203. 12. 102. 13. 106. 14. 102. 15. 201. 16. 203. 17. 206. 18. 105. 19. 100. 20. 108. 21. 105. 22. 103. 23. 102. 24. 103.

Page 94. 1. 77¢. 2. 79¢. 3. 81¢. 4. 82¢. 5. 70¢. 6. 78¢.

Page 96. 1. 70. 2. 52. 3. 100. 4. 42. 5. 69. 6. 90.

Page 97. 1. 213. 2. 349. 3. 244. 4. 283. 5. 268. 6. 249. 7. 270. 8. 118. 9. 229. 10. 268. 11. 262. 12. 315. 13. 221. 14. 242. 15. 258. 16. 291. 17. 330. 18. 318. 19. 263. 20. 281. 21. 247. 22. 279. 23. 243. 24. 291. 25. 253. 26. 226. 27. 280. 28. 222. 29. 256. 30. 297.

Page 98. 1. 786. 2. 691. 3. 893. 4. 761. 5. 763. 6. 993. 7. 994. 8. 780. 9. 992. 10. 886. 11. 230. 12. 280. 13. 384 miles. 14. 973.

Page 99. 1. 570. 2. 652. 3. 856. 4. 835. 5. 948. 6. 805. 7. 828. 8. 757. 9. 906. 10. 909. 11. 742. 12. 539. 13. 860. 14. 936. 15. 749. 16. 416. 17. 899. 18. 948. 19. 859. 20. 919. 21. 699. 22. 719. 23. 998. 24. 719. 25. 879.

Page 100. 1. 194. 2. 78. 3. 133. 4. 292. 5. 236. 6. 388.

Page 101. 1. 334. 2. 550. 3. 526. 4. 741. 5. 336. 6. 804. 7. 845. 8. 641. 9. 986. 10. 934. 11. 914. 12. 995. 13. 751. 14. 925. 15. 911. 16. 900. 17. 954. 18. 715. 19. 978. 20. 879.

Page 103. 9. $4.50. 10. $6.27. 11. $5.61. 12. $2.29. 13. $7.66. 14. $9.77. 15. $8.43. 16. $9.11.

Page 104. 11. $4.43. 12. $5.25. 13. $1.13. 14. $1.85. 15. $1.41. 16. $5.17. 17. $2.00. 18. $3.65. 19. $8.47. 20. $7.62.

Page 105. 1. $9.00. 2. $63.00. 3. 75¢. 4. 1¢. 5. 10¢. 6. $10.10. 7. $25.03. 8. $50.50. 9. $100.25. 10. $1.25. 11. $2.37; $0.40. 12. $3.75. 13. $4.61. 14. $2.08. 15. $1.10. 16. $0.72. 17. $1.72. 18. $0.50. 19. $2.50. 20. $1.00. 21. $5.00. 22. $22.00. 23. $10.33. 24. $11.30. 25. $9.46. 26. $9.21. 27. $14.77. 28. $7.50. 29. $8.98. 30. $18.89. 31. $16.74. 32. $9.74. 33. $19.21. 34. $14.33. 35. $13.12. 36. $21.92.

Page 106. 1. 43. 2. 31. 3. 83¢. 4. 150 minutes. 5. 294. 6. 70¢. 7. $1.55.

Page 107. 1. $3.27. 2. $6.80. 3. $3.82. 4. $5.05. 5. $6.50. 6. $4.75. 7. $3.39. 8. $6.44. 9. $6.24. 10. $8.33. 11. $2.26. 12. $1.00. 13. $2.51. 14. $2.10. 15. $2.43. 16. $5.11. 17. $1.07. 18. $1.10. 19. $4.40. 20. $3.01. 21. $2.63. 22. $3.05. 23. $2.68. 24. $4.70. 25. $3.59.

Page 108. 1: 2; 7. 2. 5; 0. 3. 2 dimes and 3 cents. 4. 6 dimes and 4 cents. 5. 9 dimes and 1 cent. 6. 5 dimes and 6 cents. 7. 3 dimes and 0 cents. 8. 1 dime and 5 cents. 9. 8 dimes and 2 cents. 10. 2 dimes and 0 cents. 11. 1 dime and 7 cents. 12. 4 dimes and 8 cents. 13. 3 dimes and 2 cents. 14. 5 tens and 4 ones. 15. 13¢. 16. 16¢. 17. 12¢. 18. 14¢. 19. 11. 20. 15. 21. 12. 22. 14. 23. 2 tens and 16 ones. 24. 1 ten and 15 ones. 25. 2 tens and 12 ones. 26. 3 tens and 12 ones. 27. 3 tens and 15 ones. 28. 5 tens and 11 ones. 29. 2 tens and 17 ones. 30. 4 tens and 14 ones. 31. 1 ten and 16 ones. 32. 1 ten and 10 ones. 33. 5 tens and 15 ones. 34. 6 tens and 10 ones. 35. 4 tens and 12 ones. 36. 2 tens and 18 ones. 37. 4 tens and 13 ones.

Page 109. 1. 19. 2. 19. 3. 48. 4. 45. 5. 67. 6. 17. 7. 37. 8. 28. 9. 24. 10. 25. 11. 73. 12. 35. 13. 39. 14. 48. 15. 59. 16. 46. 17. 58. 18. 23.

Page 110. 1. Boat; windmill. 2. 5¢; 6¢; 20¢. 3. 21¢; 12¢. 4. 20¢. 5. 8¢; 52¢; 60¢. 6. 57¢; doll, stove, tea set, drum, or horn. 7. 9¢ more than windmill; 26¢ more than doll; 27¢ more than stove; 41¢ more than tea set; 53¢ more than drum; 58¢ more than ball; 61¢ more than horn.

Page 111. 1. 60 + 12. 2. 20 + 12. 3. 70 + 11. 4. 40 + 13. 5. 70 + 17. 6. 30 + 13. 7. 48. 8. 39. 9. 38. 10. 59. 11. 47. 12. 37. 13. 28. 14. 25. 15. 57. 16. 34. 17. 24. 18. 19. 19. 15. 20. 17. 21. 12. 22. 67. 23. 43. 24. 58. 25. 79. 26. 23. 27. 35. 28. 16. 29. 66. 30. 16. 31. 28. 32. 18. 33. 19. 34. 29. 35. 69. 36. 68. 37. 18. 38. 35. 39. 25. 40. 46. 41. 37. 42. 74.

Page 112. 1. 14. 2. 22. 3. 35. 4. 58. 5. 19. 6. 17. 7. 23. 8. 16. 9. 31. 10. 28. 11. 7. 12. 25. 13. 36. 14. 64. 15. 59. 16. 3. 17. 22. 18. 71. 19. 39. 20. 34. 21. 31. 22. 57. 23. 43. 24. 12. 25. 28. 26. 44. 27. 46. 28. 17. 29. 63. 30. 16.

Page 113. 1. 64. 2. 45. 3. 44. 4. 42. 5. 65. 6. 30. 7. 43. 8. 14. 9. 49. 10. 38. 11. 49. 12. 38. 13. 39. 14. 19. 15. 49. 16. 18.

Page 114. 1. 55. 2. 38. 3. 65. 4. 46. 5. 19. 6. 23. 7. 18. 8. 18. 9. 39. 10. 26. 11. 37. 12. 24. 13. 79. 14. 38. 15. 29. 16. 57. 17. 44. 18. 56. 19. 17. 20. 18. 21. 17. 22. 31. 23. 75. 24. 67. 25. 68. 26. 29. 27. 64. 28. 38. 29. 12. 30. 46. 31. 57. 32. 39. 33. 42. 34. 47. 35. 29. 36. 35. 37. 53. 38. 19. 39. 44. 40. 53. 41. 29. 42. 29. 43. 38. 44. 17. 45. 28. 46. 35. 47. 45. 48. 16. 49. 46. 50. 14. 51. 37. 52. 27. 53. 16. 54. 29.

Page 115. 1. $35. 2. 25¢. 3. 28¢. 4. $25. 5. $18. 6. $11. 7. 19¢. 8. 23¢. 9. 24¢. 10. 26¢. 11. 12¢. 12. 15¢.

Page 116. 1. 447. 2. 328. 3. 46. 4. 509. 5. 729. 6. 165. 7. 338. 8. 807. 9. 459. 10. 739. 11. 367. 12. 518. 13. 648. 14. 657. 15. 268. 16. 206. 17. 234. 18. 617. 19. 753. 20. 233. 21. 474. 22. 526. 23. 149. 24. 109. 25. 309. 26. 216. 27. 108. 28. 104. 29. 412. 30. 806. 31. 305. 32. 202. 33. 907. 34. 109. 35. 131. 36. 655. 37. 208. 38. 357. 39. 485. 40. 23.

Page 117. 1. 390. 2. 374. 3. 697. 4. 182. 5. 753. 6. 275. 7. 298. 8. 270. 9. 196. 10. 180. 11. 561. 12. 657. 13. 380. 14. 461. 15. 499. 16. 250. 17. 380. 18. 554. 19. 591. 20. 142. 21. 168. 22. 883. 23. 242. 24. 165. 25. 476.

Page 118. 1. 855. 2. 294. 3. 208. 4. 466. 5. 203. 6. 202. 7. 268. 8. 376. 9. 678. 10. 183. 11. 113. 12. 592. 13. 352. 14. 102. 15. 505.

Page 119. 1. 10. 2. 6¢; 6. 3. 18.

Page 120. 10. 6¢. 11. 16¢; 14¢; 12¢. 12. 10. 13. 18. 14. 12. 15. 16. 16. 14. 17. 8.

Page 121. 5. 8¢. 6. 14¢. 7. 10¢. 8. 16¢. 9. 12¢. 10. 18¢.

Page 122. 1. 14. 2. 6. 3. 16. 4. 6 miles. 5. 16. 6. 12¢. 7. 8. 8. 18¢. 9. 10¢. 10. 12. 11. 14; 16.

Page 123. 12. 21¢. 13. 3; 6; 12. 14. 9; 18; 15.

Page 125. 1. 24. 2. 6. 3. 12. 4. 27. 5. 3. 6. 27; 21. 7. 18.

Page 128. 1. 8. 2. 10. 3. 9. 4. 16. 5. 10¢. 6. 4¢; 10¢; 16¢; 12¢; 18¢; 6¢; 14¢; 8¢. 7. Post: 10¢; 18¢; 14¢; 16¢; 8¢; 12¢. Sun: 24¢; 9¢; 18¢; 15¢; 6¢; 27¢.

Page 129. 1. 19 + 7. 2. $20. 3. Sum. 6. 5. 7. 730. 8. 40¢. 9. 0. 10. 8. 11. 25¢. 12. 34. 13. Same. 14. 9. 15. $1.27. 16. 3. 17. 4.

Page 130. 1. 6, 8, 9, 13, 16, 19, 22, 27, 31, 40; 5, 7, 8, 12, 15, 18, 21, 26, 30, 39; 8, 10, 11, 15, 18, 21, 24, 29, 33, 42; 7, 9, 10, 14, 17, 20, 23, 28, 32, 41; 10, 12, 13, 17, 20, 23, 26, 31, 35, 44; 12, 14, 15, 19, 22, 25, 28, 33, 37, 46; 9, 11, 12, 16, 19, 22, 25, 30, 34, 43; 11, 13, 14, 18, 21, 24, 27, 32, 36, 45. 2. 7, 12, 15, 18, 21, 26, 30, 32, 34, 39; 6, 11, 14, 17, 20, 25, 29, 31, 33, 38; 9, 14, 17, 20, 23, 28, 32, 34, 36, 41; 8, 13, 16, 19, 22, 27, 31, 33, 35, 40; 11, 16, 19, 22, 25, 30, 34, 36, 38, 43; 13, 18, 21, 24, 27, 32, 36, 38, 40, 45; 10, 15, 18, 21, 24, 29, 33, 35, 37, 42; 12, 17, 20, 23, 26, 31, 35, 37, 39, 44. 3. 28. 4. 27. 5. 22. 6. 22. 7. 27. 8. 23. 9. 28. 10. 816. 11. 701. 12. 772. 13. 904. 14. 1640. 15. 16. 16. 8. 17. 9. 18. 13. 19. 9. 20. 767. 21. 365. 22. 167. 23. 377. 24. 308. 25. 489. 26. 598. 27. 454. 28. 503. 29. 287.

Page 131. 1. 146. 2. 243. 3. 126. 4. 276. 5. 153. 6. 168. 7. 182. 8. 219. 9. 126. 10. 128. 11. 217. 12. 189.

Page 132. 1. 68. 2. 69. 3. 168. 4. 124. 5. 129. 6. 64. 7. 68. 8. 69. 9. 168. 10. 124. 11. 129. 12. 64. 13. 88. 14. 164. 15. 159. 16. 144. 17. 168. 18. 155. 19. 106. 20. 213. 21. 162. 22. 186. 23. 147. 24. 184. 25. 186. 26. 189. 27. 248. 28. 186. 29. 246. 30. 279.

Page 133. 1. 128. 2. 104. 3. 52¢. 4. 123. 5. 18. 6. 39¢. 7. 69 minutes. 8. 93. 9. 48. 10. 36.

Page 134. 13. 70. 14. 120. 15. 240. 16. 120. 17. 150. 18. 160. 19. 180. 20. 80. 21. 120. 22. 70. 23. 150. 24. 140. 25. 180. 26. 140. 27. 80. 28. 210. 29. 180. 30. 100.

Page 135. 1. 1806. 2. 1204. 3. 1220. 4. 1280. 5. 2196. 6. 1624. 7. 1248. 8. 2400. 9. 1448. 10. 2763. 11. 1833. 12. 1550. 13. 1266. 14. 1407. 15. 2790. 16. 1680. 17. 1299. 18. 1809. 19. 931. 20. 2408.

Page 136. 1. 600. 2. 609. 3. 300. 4. 804. 5. 360. 6. 224. 7. 480. 8. 500. 9. 396. 10. 288.

Page 137. 1. $6.78. 2. $3.85. 3. $1.75. 4. 7, 3, 5. 5. 961. 6. 534. 7. 976. 8. 413. 9. 998. 10. 264. 11. 515. 12. 292. 13. 513. 14. 450. 15. 777. 16. 379. 17. 548. 18. 449. 19. 262. 20. 606. 21. 648. 22. 1800. 23. 1806. 24. 2177.

Page 138. 1. 0; 5; 0; 2; 0; 8; 0; 3. 2. 7; 0; 6; 0; 4; 0; 1; 0. 3. 0; 9; 4; 0; 6; 0; 2; 0. 4. 12; 10; 14; 10; 18; 8; 16; 12. 5. 6; 5; 12; 0; 0; 0; 15; 4. 6. 8; 18; 9; 0; 16; 9; 0; 12. 7. 24; 3; 27; 15; 0; 6; 8; 21. 8. 18; 0; 21; 18; 24; 14; 27; 7. 9. 0; 7; 0; 12; 6; 8; 24; 18. 10. 5; 0; 9; 10; 5; 18; 3; 0. 11. 0; 6; 4; 14; 12; 9; 27; 21. 12. 2; 0; 0; 10; 0; 0; 15; 18. 13. 0; 4; 6; 18; 0; 16; 0; 24. 14. 8; 0; 0; 8; 0; 9; 6; 14. 15. 0; 1; 2; 16; 15; 0; 8; 27. 16. 3; 0; 0; 12; 4; 12; 21; 7.

Page 139. 22. 13; 11; 15; 11; 19; 9; 17; 13. 23. 7; 6; 13; 1; 1; 1; 16; 5. 24. 9; 19; 10; 1; 17; 10; 1; 13. 25. 25; 4; 28; 16; 1; 7; 9; 22. 26. 8; 7; 14; 2; 2; 2; 17; 6. 27. 10; 20; 11; 2; 18; 11; 2; 14. 28. 26; 5; 29; 17; 2; 8; 10; 23. 29. 20; 2; 23; 20; 26; 16; 29; 9.

Page 140. 1. 54. 2. 135. 3. 72. 4. 224. 5. 138. 6. 156. 7. 65. 8. 92. 9. 96. 10. 110. 11. 162. 12. 132.

Page 141. 1. 174. 2. 87. 3. 184. 4. 141. 5. 117. 6. 234. 7. 264. 8. 171. 9. 207. 10. 294. 11. 91. 12. 158. 13. 136. 14. 285. 15. 104. 16. 165. 17. 198. 18. 291. 19. 161. 20. 168. 21. 178. 22. 198. 23. 150. 24. 160. 25. 297. 26. 92. 27. 78. 28. 176. 29. 52. 30. 60. 31. 115. 32. 154. 33. 114. 34. 192. 35. 190. 36. 288.

Page 142. 1. 75¢. 2. 96¢. 3. 90¢. 4. 99¢. 5. 87¢. 6. 80¢. 7. $3. 8. 70¢. 9. 80¢. 10. 60¢. 11. 98¢.

Page 143. 1. 1258. 2. 927. 3. 1510. 4. 2742. 5. 1696. 6. 1218. 7. 2496. 8. 618. 9. 784. 10. 816. 11. 2040. 12. 528. 13. 1146. 14. 605. 15. 1840. 16. 1383. 17. 924. 18. 2240. 19. 1128. 20. 920. 21. 2070. 22. 2648. 23. 1719. 24. 720. 25. 1617. 26. 396. 27. 532. 28. 792. 29. 660. 30. 950. 31. 574. 32. 1125. 33. 1660. 34. 867. 35. 1107. 36. 738. 37. 894. 38. 738. 39. 1631. 40. 1071.

Page 144. 1. $1.52. 2. $0.87. 3. $1.78. 4. $0.76. 5. $1.41. 6. $1.95. 7. $1.18. 8. $2.52. 9. $1.50. 10. $2.07. 11. 87¢. 12. $1.08. 13. 96¢. 14. 78¢. 15. 84¢. 16. 91¢. 17. $1.11.

Page 145. 1. 15; 13; 11; 14; 12; 13; 12; 16. 2. 18; 13; 11; 13; 12; 17; 12; 14. 3. 14; 14; 13; 15; 13; 11; 14; 17. 4. 12; 15; 16; 12; 15; 11; 16; 12. 5. 8; 9; 7; 7; 7; 2; 9; 8. 6. 8; 4; 9; 8; 4; 5; 5; 6. 7. 5; 4; 7; 9; 6; 8; 6; 7. 8. 3; 3; 5; 9; 9; 8; 9; 6.

Page 146. 1. 60; 120; 180; 210. 2. 80; 90; 120; 180. 3. 140; 240; 160; 270. 4. 402. 5. 830. 6. 660. 7. 250. 8. 702. 9. 705. 10. 290. 11. 708. 12. 2070. 13. 405. 14. $3.09. 15. $7.00. 16. $27.30. 17. $1.50. 18. $21.00. 19. $4.08. 20. $7.02. 21. $1.90. 22. $8.50. 23. $19.50. 24. $6.00. 25. $2.25.

Page 149. 1. 2¢. 2. 9¢. 3. 5. 4. 3. 5. 7. 6. 4. 7. 6. 8. 3. 9. 8.

Page 151. 1. 3. 2. 5. 3. 9. 4. 9; 5; 6; 3; 2. 5. 8. 6. 5; 7. 7. 9. 8. 8. 9. 3. 10. 4. 11. 7. 12. 2; 9; 6; 7; 3; 1; 4; 5; 8. 13. 5; 2; 9; 4; 8; 6; 7; 3.

Page 153. 1. 12; 18; 4; 21; 8; 8; 27; 12. 2. 8; 9; 5; 16; 9; 24; 10; 3. 3. 15; 2; 7; 4; 4; 12; 15; 18. 4. 18; 10; 21; 1; 14; 8; 14; 6. 5. 6; 24; 6; 9; 12; 16; 18; 27. 6. 2; 9; 2; 9; 6; 1. 7. 4; 1; 1; 5; 8; 1. 8. 1; 1; 6; 1; 2; 1. 9. 3; 1; 6; 7; 9; 4. 10. 4; 3; 3; 7; 4; 7. 11. 8; 1; 9; 8; 5; 5.

Page 154. 1. 160. 2. 153. 3. 230. 4. 211. 5. 249. 6. 264. 7. 244. 8. 206. 9. 248. 10. 259. 11. 312. 12. 323. 13. 312. 14. 314. 15. 307. 16. 1696. 17. 2135. 18. 2004. 19. $21.32. 20. 1959. 21. 2365. 22. 1995. 23. $22.20.

Page 155. 1. 5, 7, 59, 10, 42, 14, 28, 51; 4, 6, 58, 9, 41, 13, 27, 50; 3, 5, 57, 8, 40, 12, 26, 49; 2, 4, 56, 7, 39, 11, 25, 48. 2. 6, 8, 80, 47, 29, 55, 91, 64; 5, 7, 79, 46, 28, 54, 90, 63; 4, 6, 78, 45, 27, 53, 89, 62; 3, 5, 77, 44, 26, 52, 88, 61. 3. 11, 24, 23, 56, 67, 39, 78, 50; 10, 23, 22, 55, 66, 38, 77, 49; 9, 22, 21, 54, 65, 37, 76, 48; 8, 21, 20, 53, 64, 36, 75, 47. 4. 9, 18, 32, 40, 85, 77, 66, 89; 8, 17, 31, 39, 84, 76, 65, 88; 7, 16, 30, 38, 83, 75, 64, 87; 6, 15, 29, 37, 82, 74, 63, 86. 5. 467. 6. 504. 7. 487. 8. $5.45. 9. 356. 10. 586. 11. 355. 12. $6.67. 13. 778. 14. 476. 15. 678. 16. $2.89. 17. 467. 18. 425. 19. 549. 20. $2.93. 21. 709. 22. 39. 23. 439. 24. $2.39. 25. 288. 26. 11. 27. 827. 28. $2.88.

Page 156. 1. 14. 2. 22. 3. 17. 4. 22. 5. 15. 6. 21. 7. 25. 8. 1347. 9. 935. 10. 1507. 11. 1153. 12. 1616. 13. 535. 14. 506. 15. 268. 16. 306. 17. 744. 18. 248. 19. 488. 20. 676. 21. 159. 22. 563. 23. 294. 24. 954. 25. 927. 26. 1491. 27. 518. 28. 1216. 29. 852. 30. 807. 31. 2718. 32. 642. 33. 2355. 34. 660. 35. 796. 36. 738. 37. 1221.

Page 160. 1. 6. 2. 8. 3. 21. 4. 33. 5. 14. 6. 37. 7. 25. 8. 34. 9. 22. 10. 14. 11. 35. 12. 29. 13. 17. 14. 30. 15. 21. 16. 34. 17. 22. 18. 25. 19. 7. 20. 27. 21. 10. 22. 26. 23. 17. 24. 39. 25. 26. 26. 39. 27. 12. 28. 3852. 29. 858. 30. 3536. 31. 1464. 32. 1278. 33. 620. 34. 540. 35. 3094. 36. 3988. 37. 1144. 38. 3592. 39. 720. 40. 3080. 41. 1700. 42. 1296.

Page 161. 1. 2. 2. 38. 3. 3. 4. 21. 5. 2. 6. 30. 7. 30. 8. 31. 9. 33. 10. 27. 11. 34. 12. 19. 13. 23; 11; 15; 12; 3; 27; 11; 3; 7; 19. 14. 632. 15. 1224. 16. 1236. 17. 872. 18. 1260. 19. 1287. 20. 1632. 21. 1416. 22. 3228. 23. 2728. 24. 2058. 25. 592. 26. 744. 27. 1016. 28. 1904. 29. 1206. 30. 992. 31. 1516. 32. 912. 33. 2692. 34. 1836. 35. 512. 36. 2736. 37. 1520. 38. 804.

Page 162. 22. 5. 23. 6. 24. 5¢. 25. 7.

Page 163. 1. 5¢. 2. 6. 3. 3¢. 4. 4. 5. 3. 6. 4. 7. 7. 8. 1. 9. 7. 10. 3. 11. 8. 12. 2. 13. 5. 14. 4. 15. 6. 16. 9. 17. 6. 18. 4. 19. 8. 20. 5. 21. 2. 22. 3. 23. 7. 24. 9.

Page 164. 1. 8. 2. 5. 3. 5; 7; 9. 4. 3; 5; 9; 4. 5. 3. 6. 9. 7. 9. 8. 5. 9. 8. 10. 2. 11. 5. 12. 4. 13. 9. 14. 2. 15. 6. 16. 8. 17. 1. 18. 5. 19. 1. 20. 7. 21. 2. 22. 9. 23. 7. 24. 3. 25. 1. 26. 4. 27. 6. 28. 4. 29. 8. 30. 3. 31. 3. 32. 7. 33. 9. 34. 6.

Page 166. 1. 10. 2. 25. 3. 15¢. 4. 5¢. 5. 45¢. 6. 20¢. 7. 40¢. 8. 30¢. 9. 35¢.

Page 167. 1. 32. 2. 47. 3. 42. 4. 32. 5. 36. 6. 47. 7. 38. 8. 27. 9. 37. 10. 46. 11. 38. 12. 41. 13. 37. 14. 13. 15. 36. 16. 42. 17. 31. 18. 39. 19. 4. 20. 26. 21. 43. 22. 28. 23. 28. 24. 44. 25. 19. 26. 22. 27. 34. 28. 3920. 29. 912. 30. 4770. 31. 2016. 32. 865. 33. 735. 34. 3410. 35. 3864. 36. 4635. 37. 2880. 38. 3265. 39. 4725. 40. 4460. 41. 2824. 42. 3140. 43. 1370. 44. 1078. 45. 840. 46. 2124. 47. 1935.

Page 168. 1. 3; 21; 17; 13; 9; 48; 23; 24; 48; 3. 2. 33; 31; 15; 43; 27; 10; 11; 3; 33; 3. 3. 31; 24; 20; 9; 40; 49; 36; 29; 4; 49. 4. 945. 5. 3150. 6. 4360. 7. 1715. 8. 2990. 9. 735. 10. 1335. 11. 3186. 12. 2430. 13. 870. 14. 4905. 15. 1035. 16. 945. 17. 2730. 18. 630. 19. 810. 20. 735. 21. 690. 22. 1480. 23. 1245. 24. 2268. 25. 2196. 26. 864. 27. 1715. 28. 1001.

Page 169. 22. 9. 23. 8. 24. 4. 25. 6. 26. 9. 27. 6. 28. 5¢. 29. 5.

Page 170. 1. 28¢. 2. 4. 3. 4. 4. 6. 5. 2. 6. 3; 5; 9; 4. 7. 4. 8. 3; 5. 9. 3. 10. 8. 11. 315. 12. 125. 13. 144. 14. $8.75. 15. 548 miles. 16. 61 pounds. 17. 85¢. 18. $1.00. 19. 14. 20. 17. 21. 696.

Page 172. 1. 10; 4; 8; 3. 2. 27; 3; 7; 7. 3. 15; 5; 9; 4. 4. 14; 7; 9; 2. 5. 18; 7; 5; 6. 6. 10; 27; 15; 14; 18. 7. 4; 3; 5; 7; 7. 8. 8; 7; 9; 9; 5. 9. 3; 7; 4; 2; 6. 10. 16; 10; 6; 4. 11. 21; 7; 12; 27. 12. 3; 13; 16; 6. 13. 13; 8; 12; 15. 14. 8; 18; 5; 24. 15. 8; 17; 8; 6; 18; 12; 5; 24. 16. 10; 6; 16; 12; 5; 15; 9; 27.

Page 174. 4. 6. 5. 9. 6. 12. 7. 18. 8. 24. 9. 15. 10. 4. 11. 7. 12. 5.

Page 175. 2. 2 in. 4. 22. 11. 9. 12. 70.

Page 177. 14. $3. 15. 6.

Page 179. 4. 1; 2; 8. 5. 8; 2; 7. 6. 1.

Page 180. 1. 12. 2. 4. 3. 3. 4. $\frac{1}{4}$. 5. 3; 3. 6. 2. 7. 5. 8. 8. 9. 6. 10. 7. 11. 9. 12. 1. 13. 4. 14. 4. 15. 1. 16. 2. 17. 3. 18. 4. 19. 1.

Page 182. 1. 1 pound. 2. 16. 3. $\frac{1}{2}$; 8. 4. 4; 4 oz. 5. 4. 6. 48.

Page 183. 1. 21. 2. 24. 4. 15 lb.

Page 184. 1. 12. 2. 6; 4; 3. 3. 3; 2. 4. $\frac{1}{3}$ doz.; 1. 5. 9. 6. $\frac{1}{2}$; $\frac{1}{4}$; $\frac{1}{3}$; $\frac{1}{2}$. 7. 24. 8. 6. 9. 4. 10. 36. 11. 14. 12. 16.

Page 185. 1. 9. 2. 6. 3. 6. 4. $2. 5. 8. 6. 7. 7. 4.

Page 187. 1. 0; 15; 16; 20; 10; 32; 15; 32. 2. 21; 25; 36; 5; 36; 0; 18; 40. 3. 30; 7; 24; 30; 9; 0; 28; 10. 4. 18; 20; 27; 35; 12; 45; 28; 40. 6. 3. 7. 5. 8. 3.

Page 188. 1. 1; 6; 4; 2; 7. 2. 7; 5; 4; 7; 9. 3. 6; 5; 4; 1; 4. 4. 7; 2; 9; 4; 7. 5. 8; 2; 8; 1; 8. 6. 5; 1; 1; 2; 8. 7. 6; 3; 5; 5; 2. 8. 9; 3; 3; 3; 9. 9. 9; 3; 6; 6; 8. 10. 1; 2; 5; 9; 3; 7; 4; 6; 8. 11. 1; 3; 5; 4; 2; 7; 8; 6; 9. 12. 1; 3; 5; 2; 9; 7; 8; 4; 6. 13. 1; 2; 5; 8; 7; 6; 3; 4; 9. 14. 7. 15. 9. 16. 9. 17. 5. 18. 5. 19. 9. 20. 7. 21. 7. 22. 3.

Page 189. 1. $1.84. 2. 31¢. 3. 26¢. 4. $1.35. 5. 3. 6. 5. 7. $\frac{1}{4}$. 8. 19. 9. $\frac{1}{3}$. 10. 12. 11. $\frac{1}{3}$ of an apple. 12. 2. 13. 8; 7; 4. 14. 9 in. 15. 6. 16. 5. 17. No; yes. 18. $\frac{1}{2}$ of 16. 19. 4.

Page 190. 1. 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, 41; 2, 6, 10, 14, 18, 22, 26, 30, 34, 38, 42; 3, 7, 11, 15, 19, 23, 27, 31, 35, 39, 43. 2. 1, 6, 11, 16, 21, 26, 31, 36, 41, 46, 51; 2, 7, 12, 17, 22, 27, 32, 37, 42, 47, 52; 3, 8, 13, 18, 23, 28, 33, 38, 43, 48, 53; 4, 9, 14, 19, 24, 29, 34, 39, 44, 49, 54. 3. 1, 7, 13, 19, 25, 31, 37, 43, 49, 55, 61; 2, 8, 14, 20, 26, 32, 38, 44, 50, 56, 62; 3, 9, 15, 21, 27, 33, 39, 45, 51, 57, 63; 4, 10, 16, 22, 28, 34, 40, 46, 52, 58, 64; 5, 11, 17, 23, 29, 35, 41, 47, 53, 59, 65. 4. 201. 5. 937. 6. 780. 7. $22.22. 8. $22.10. 9. 376. 10. 548. 11. 380. 12. 279. 13. 59. 14. 1827. 15. 3645. 16. 3840. 17. 1794. 18. 3128. 19. 2172. 20. 1050. 21. 3415. 22. 3276. 23. 1461.

Page 191. 1. 9. 2. 3. 3. 9. 4. 8. 5. 5. 6. 8. 7. 7. 8. 2. 9. 2. 10. 7. 11. 9. 12. 3. 13. 8. 14. 3. 15. 6. 16. 2. 17. 7. 18. 4. 19. 6. 20. 5. 21. 2. 22. 6. 23. 6. 24. 5. 25. 8. 26. 5. 27. 8. 28. 1. 29. 7. 30. 9. 31. 7. 32. 9. 33. 3. 34. 1. 35. 4. 36. 4. 37. 7. 38. 8. 39. 7. 40. 6. 41. 4. 42. 7. 43. 9. 44. 8. 45. 7. 46. 4. 47. 6. 48. 9. 49. 8. 50. 3. 51. 2. 52. 3. 53. 4. 54. 8. 55. 8.

Page 192. 1. 395. 2. 28 miles. 3. 588 lb. 4. 9. 8. 2. 9. 12; 36. 10. 16; 8. 11. 12; 3. 12. 2; 4. 13. 3; 6; 15; 21.

Page 194. 2. 6541. 3. 3333. 4. 5012; 6004. 5. 1938. 6. Five thousand three hundred seventy-four; three thousand six hundred nine; seven thousand one; six thousand six hundred sixty-six; nine thousand nine. 7. Nine thousand four hundred; four thousand eight hundred fifty-two; eight thousand forty; one thousand seven hundred seventy-five; one thousand fifty-eight.

Page 195. 1. 231. 2. 231. 3. 212. 4. 312. 5. 332. 6. 142. 7. 123. 8. 221. 9. 122. 10. 321. 11. 423. 12. 213.

Page 196. 1. 73. 2. 63. 3. 51. 4. 53. 5. 31. 6. 52. 7. 92. 8. 43. 9. 81. 10. 32. 11. 41. 12. 51. 13. 61. 14. 42. 15. 74. 16. 31. 17. 72. 18. 82. 19. 61. 20. 93. 21. 84. 22. 71. 23. 91. 24. 83. 25. 62. 26. 83. 27. 71. 28. 72. 29. 81. 30. 92. 31. 91. 32. 94. 33. 71. 34. 82. 35. 41. 36. 91. 37. 92. 38. 62. 39. 72. 40. 73.

Page 197. 1. 31. 2. 82. 3. 73. 4. 71. 5. 71. 6. 82. 7. 93. 8. 91. 9. 51. 10. 82. 11. 91. 12. 62. 13. 121. 14. 213. 15. 64. 16. 81. 17. 423. 18. 231. 19. 72. 20. 92. 21. 81. 22. 93. 23. 91. 24. 341. 25. 42. 26. 323. 27. 244. 28. 212. 29. 63. 30. 324. 31. 31. 32. 212.

Page 198. 1. 20. 2. 30. 3. 20. 4. 30. 5. 100. 6. 202. 7. 101. 8. 303. 9. 120. 10. 70. 11. 302. 12. 90. 13. 70. 14. 90. 15. 50. 16. 203. 17. 203. 18. 200. 19. 302. 20. 70. 21. 90. 22. 80. 23. 120. 24. 403.

Page 199. 1. 6¢. 2. 20¢. 3. 21. 4. 32¢. 5. 20. 6. 12. 7. 24. 8. 11. 9. 10. 10. 43. 11. 40. 12. 31.

Page 200. 1. 10¢; 10¢. 2. 12¢. 3. 15¢. 4. 20¢. 5. 14¢. 6. 9¢. 7. 27¢. 8. 13¢; 13¢. 9. 14¢; 11¢. 10. 15¢; 22¢. 11. One 1 and four 3's. 12. One 3 and five 2's. 13. One 5 and four 2's. 14. One 3 and two 5's. 15. One 4 and three 3's.

Page 202. 1. 7. 2. 5. 3. 6. 4. 7. 5. 1. 6. 1. 7. 1. 8. 1. 9. 2. 10. 3. 11. 2, 1. 12. 3, 1. 13. 3, 2. 14. 4, 1. 15. 7, 1. 16. 6, 1. 17. 8, 3. 18. 4, 0. 19. 5, 3. 20. 6, 0.

Page 203. 25. 3, 1 R; 2, 1 R; 3, 1 R; 6; 1, 2 R; 4. 26. 3; 1, 1 R; 3, 1 R; 7, 1 R; 5; 6, 1 R. 27. 2, 2 R; 1, 2 R; 9; 2, 3 R; 8, 1 R; 6. 28. 4, 1 R; 1, 3 R; 4, 1 R; 7; 7; 9, 1 R.

Page 204. 1. 2, 1 R; 4, 1 R; 2, 2 R; 3, 1 R; 2, 3 R. 2. 1, 2 R; 2, 1 R; 4, 1 R; 1, 2 R; 9, 1 R. 3. 2, 1 R; 7, 1 R; 5, 1 R; 2, 1 R; 1, 3 R. 4. 7, 1 R; 8, 1 R; 1, 4 R; 3, 1 R; 7, 2 R. 5. 4, 2 R; 3, 2 R; 5, 1 R; 1, 2 R; 8, 2 R. 6. 6, 2 R; 4, 2 R; 6, 1 R; 2, 2 R; 7, 2 R. 7. 4, 3 R; 2, 4 R; 6, 1 R; 3, 3 R; 8, 1 R. 8. 9, 1 R; 3, 2 R; 2, 2 R; 4, 1 R; 1, 3 R. 9. 6, 4 R; 3, 4 R; 9, 1 R; 5, 2 R; 5, 1 R. 10. 7, 3 R; 7, 1 R; 8, 2 R; 9, 2 R; 5, 1 R. 11. 7, 2 R; 5, 2 R; 4, 1 R; 8, 4 R; 9, 2 R. 12. 2, 3 R; 6, 2 R; 8, 3 R; 8, 1 R; 5, 3 R. 13. 5, 4 R; 4, 3 R; 9, 4 R; 7, 1 R; 9, 3 R. 14. 5, 3 R; 8, 2 R; 9, 2 R; 6, 2 R; 4, 4 R. 15. 6, 3 R; 4, 2 R; 9, 3 R; 6, 1 R; 8, 1 R. 16. 7, 3 R; 3, 3 R; 7, 4 R; 3, 2 R; 6, 1 R. 17. 6, 3 R; 3, 1 R; 9, 1 R; 8, 3 R; 5, 2 R.

Page 205. 1. 36. 2. 15. 3. 17. 4. 26. 5. 48. 6. 14. 7. 19. 8. 12. 9. 25. 10. 28. 11. 23. 12. 18. 13. 14. 14. 12. 15. 13. 16. 15.

Page 206. 1. 29. 2. 16. 3. 18. 4. 19. 5. 16. 6. 17. 7. 17. 8. 19. 9. 28. 10. 19. 11. 170. 12. 60. 13. 45. 14. 49. 15. 160. 16. 36. 17. 75. 18. 181. 19. 191. 20. 64. 21. 113. 22. 270. 23. 180. 24. 215. 25. 150. 26. 416. 27. 214. 28. 115. 29. 240. 30. 117. 31. 349. 32. 180. 33. 228. 34. 140. 35. 113. 36. 325.

Page 207. 1. 15 minutes. 2. 24. 3. 19; 1. 4. 31; 2. 5. 65; 2.

Page 208. 1. 157. 2. 135. 3. 134. 4. 255. 5. 134. 6. 276. 7. 248. 8. 486. 9. 138. 10. 185. 11. 173. 12. 179. 13. 193. 14. 196. 15. 199. 16. 167. 17. 167. 18. 152. 19. 176. 20. 183. 21. 166. 22. 478. 23. 199. 24. 267. 25. 366. 26. 137. 27. 245. 28. 187. 29. 164. 30. 399. 31. 159. 32. 148. 33. 199. 34. 169. 35. 284. 36. 156.

Page 209. 1. 300. 2. 21. 3. 152. 4. 250. 5. 226. 6. 150. 7. 142. 8. 203. 9. 70. 10. 90. 11. 175. 12. 280. 13. 62. 14. 240. 15. 64. 16. 454. 17. 77. 18. 69. 19. 81. 20. 325. 21. 6 hours. 22. 5 hours. 23. 36. 24. 75. 25. 15¢. 26. 15. 27. 45¢. 28. 12.

Page 210. 1. $0.60. 2. $0.63. 3. $0.50. 4. $0.64. 5. $0.57. 6. $0.69. 7. $4.50. 8. $1.69. 9. $0.63. 10. $0.89. 11. $0.98. 12. $0.85. 13. $0.78. 14. $2.75. 15. $2.50. 16. $0.57. 17. $3.90. 18. $0.95. 19. $0.45. 20. $2.34. 21. $0.35. 22. $0.78. 23. $3.78. 24. $4.00. 25. $0.86. 26. $0.72. 27. $1.29. 28. $5.75. 29. $0.29. 30. $1.98. 31. $0.94. 32. $4.25.

Page 211. 1. 33. 2. 18. 3. 63 lb. 4. 30¢. 5. 52. 6. 14.

Page 212. 1. $2.50. 2. $12.00. 3. $4.00. 4. $35.00. 5. 30¢. 6. 50¢.

Page 213. 1. +. 2. −. 3. −. 4. ÷. 5. ×. 6. +. 7. ÷. 8. ÷.

Page 214. 1. $5. 2. $1. 3. $13. 4. $9. 5. 60¢. 6. $6. 7. 5 weeks. 8. $6.

Page 217. 1. 43. 2. 55. 3. 4. 4. 32. 5. 14. 6. 45. 7. 37. 8. 25. 9. 51. 10. 22. 11. 39. 12. 46. 13. 50. 14. 45. 15. 43. 16. 5. 17. 44. 18. 56. 19. 57. 20. 44. 21. 55. 22. 55¢. 23. 15¢. 24. 35¢. 25. 45¢. 26. 39¢. 27. 22. 28. 43¢.

Page 218. 1. 52. 2. 51. 3. 39. 4. 18. 5. 38. 6. 50. 7. 49. 8. 41. 9. 11. 10. 23. 11. 49. 12. 32. 13. 23. 14. 56. 15. 57. 16. 52; 28; 58; 4; 46; 34; 10; 40; 58; 16. 17. 35; 59; 17; 53; 11; 59; 29; 41; 5; 47. 18. 348. 19. 2754. 20. 1590. 21. 1842. 22. 3654. 23. 564. 24. 3642. 25. 5634. 26. 5484. 27. 1485. 28. 522. 29. 1176. 30. 1320. 31. 1242. 32. 2367.

Page 220. 1. 5. 2. 2. 3. 5. 4. 3. 5. 3. 6. 4. 7. 5. 8. 5. 9. 2. 10. 2. 11. 5. 12. 5. 13. 3. 14. 4. 15. 4. 16. 4. 17. 4. 18. 4. 19. 5. 20. 5. 21. 4. 22. 4. 23. 5. 24. 3. 25. 1, 2 R; 2, 1 R; 1, 1 R; 9, 3 R; 1, 3 R. 26. 2, 2 R; 3, 3 R; 4, 3 R; 3, 5 R; 9, 5 R. 27. 3, 4 R; 1, 4 R; 6, 3 R; 6, 5 R; 8, 2 R. 28. 5, 1 R; 4, 5 R; 2, 3 R; 9, 4 R; 4, 4 R. 29. 3, 1 R; 6, 1 R; 6, 2 R; 1, 5 R; 7, 1 R. 30. 5, 4 R; 7, 2 R; 7, 5 R; 4, 2 R; 9, 2 R. 31. 6, 4 R; 8, 4 R; 3, 2 R; 5, 5 R; 8, 1 R. 32. 2, 5 R; 9, 1 R; 5, 3 R; 5, 2 R; 7, 4 R. 33. 4, 1 R; 2, 4 R; 7, 3 R; 8, 3 R; 8, 5 R.

Page 221. 1. 48. 2. 16. 3. 54¢. 4. 1¢. 5. 8. 6. 24. 7. 16. 8. 3.

Page 222. 1. 5; 1. 2. 4; 3¢. 3. 15¢. 4. 14. 5. 35. 6. $1.15. 7. 144. 8. 22. 9. 56. 10. 150. 11. 79. 12. 96. 13. 85. 14. 89. 15. 93. 16. 49. 17. 38. 18. 72. 19. 71. 20. 57. 21. 54. 22. 87. 23. 98.

Page 224. 1. Tuesday. 2. 10. 3. 5. 4. The 14th.

Page 226. 25. 49. 26. 63. 27. 42. 28. 56¢.

Page 227. 1. 50. 2. 58. 3. 5. 4. 67. 5. 69. 6. 51. 7. 66. 8. 61. 9. 59. 10. 65. 11. 59. 12. 52. 13. 65. 14. 57. 15. 58. 16. 64. 17. 53. 18. 67. 19. 66. 20. 68. 21. 21. 22. 6. 23. 60. 24. 26. 25. 69. 26. 27. 27. 5. 28. 13; 69; 34; 48; 41; 55; 20; 62. 29. 19; 33; 54; 12; 61; 40; 68; 47. 30. 504. 31. 588. 32. 651. 33. 684. 34. 592. 35. 455.

Page 228. 1. 4249. 2. 966. 3. 1778. 4. 1038. 5. 3590. 6. 1566. 7. 1673. 8. 5502. 9. 5663. 10. 2856. 11. 2996. 12. 5142. 13. 5012. 14. 3428. 15. 2601.

Page 229. 1. 5. 2. 6. 3. 2. 4. 4. 5. 4. 6. 3. 7. 3. 8. 2. 9. 6. 10. 5. 11. 5. 12. 5. 13. 6. 14. 6. 15. 6. 16. 5. 17. 4. 18. 6. 19. 2, 4 R; 4, 3 R; 6, 6 R; 4, 2 R; 8, 6 R. 20. 7, 6 R; 6, 1 R; 2, 1 R; 3, 2 R; 5, 4 R. 21. 3, 3 R; 6, 5 R; 3, 1 R; 8, 5 R; 9, 5 R. 22. 1, 6 R; 2, 5 R; 4, 5 R; 8, 2 R; 6, 4 R. 23. 7, 4 R; 8, 4 R; 8, 1 R; 7, 1 R; 3, 4 R. 24. 3, 5 R; 5, 5 R; 2, 6 R; 9, 4 R; 6, 3 R. 25. 9, 2 R; 9, 6 R; 2, 2 R; 3, 6 R; 5, 6 R. 26. 4, 6 R; 8, 3 R; 5, 2 R; 7, 3 R; 5, 3 R. 27. 4, 4 R; 2, 3 R; 6, 2 R; 7, 2 R; 4, 1 R. 28. 7, 5 R; 9, 3 R; 9, 1 R; 4; 6.

Page 230. 1. 2. 2. 4. 3. 4; 2. 4. 4; 3. 5. 9. 6. 28. 7. 19. 8. 18. 9. 17. 10. 19. 11. 42. 12. 35. 13. 29. 14. 34. 15. 64. 16. 57. 17. 90. 18. 49. 19. 71. 20. 85. 21. 63. 22. 92. 23. 69. 24. 58. 25. 97. 26. 88. 27. 76. 28. 56. 29. 38. 30. 84. 31. 89.

Page 231. 5. 4; 6; 9; 11; 7; 17; 12; 19. 6. IV; VI; VIII; X; XI; VII; XII; XIX; XX; XVI; XVIII.

Page 232. 4. 60. 5. 12. 6. 20; 30. 7. Quarter past 10. 8. 5 minutes past 2.

Page 233. 3. 30. 4. 30. 5. 15. 6. 15. 7. 30. 8. 12. 9. 15. 10. 8. 11. 10. 12. 4. 13. 12. 14. 6. 15. 20. 16. 5. 17. 3. 18. 9.

Page 234. 1. 1, 7, 13, 19, 25, 31, 37, 43, 49, 55, 61, 67, 73; 2, 8, 14, 20, 26, 32, 38, 44, 50, 56, 62, 68, 74; 3, 9, 15, 21, 27, 33, 39, 45, 51, 57, 63, 69, 75; 4, 10, 16, 22, 28, 34, 40, 46, 52, 58, 64, 70, 76; 5, 11, 17, 23, 29, 35, 41, 47, 53, 59, 65, 71; 6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72. 2. 1, 8, 15, 22, 29, 36, 43, 50, 57, 64, 71, 78, 85; 3, 10, 17, 24, 31, 38, 45, 52, 59, 66, 73, 80; 4, 11, 18, 25, 32, 39, 46, 53, 60, 67, 74, 81; 5, 12, 19, 26, 33, 40,

47, 54, 61, 68, 75, 82; 6, 13, 20, 27, 34, 41, 48, 55, 62, 69, 76, 83; 7, 14, 21, 28, 35, 42, 49, 56, 63, 70, 77, 84. 3. 2172. 4. 2082. 5. 5663. 6. 3435. 7. 769. 8. 1876. 9. 3036. 10. 3654. 11. 4459. 12. 2745. 13. 1855. 14. 1548. 15. 2926. 16. 1944. 17. 2067. 18. 1234. 19. 1077. 20. 918. 21. 5173. 22. 4554. 23. 350. 24. 83. 25. 234. 26. 93. 27. 47. 28. 96. 29. 47. 30. 92. 31. 189. 32. 86. 33. 150. 34. 89. 35. 67. 36. 65. 37. 87. 38. 76. 39. 498. 40. 59. 41. 134. 42. 62.

Page 236. 1. 68. 2. 73. 3. 66. 4. 74. 5. 69. 6. 78. 7. 75. 8. 79. 9. 77. 10. 76. 11. 60. 12. 77. 13. 67. 14. 75. 15. 76. 16. 73. 17. 57. 18. 74. 19. 15; 71; 47; 63; 31; 55; 23; 79; 39; 7. 20. 62; 38; 14; 54; 70; 78; 46; 6; 30; 22. 21. 7264. 22. 5768. 23. $50.80. 24. 4606. 25. 3912. 26. 3912. 27. 5154. 28. $23.67. 29. 2868. 30. 6846.

Page 237. 1. 5672. 2. 1488. 3. 7263. 4. 2856. 5. 1674.

Page 238. 1. Quart, peck, bushel. 3. 12. 4. 2. 5. 16. 6. 2; 1. 7. 2.

Page 239. 1. 4. 2. 1¢. 3. 4. 4. 7. 5. 5. 6. 3. 7. 7. 8. 6. 9. 3. 10. 6. 11. 2. 12. 4. 13. 7. 14. 6. 15. 8. 16. 4. 17. 7. 18. 7. 19. 6. 20. 6. 21. 5. 22. 4. 23. 5. 24. 6. 25. 4. 26. 7. 27. 7. 28. 6. 29. 5. 30. 2. 31. 1. 32. 7. 33. 5. 34. 7. 35. 4. 36. 5.

Page 240. 1. 1, 5 R; 7, 1 R; 2, 4 R; 1, 6 R; 2, 3 R. 2. 3, 3 R; 7, 4 R; 5, 3 R; 4, 4 R; 5, 4 R. 3. 9; 4, 1 R; 2, 2 R; 3, 5 R; 2, 1 R. 4. 2, 6 R; 3, 2 R; 6, 7 R; 4, 7 R; 7, 6 R. 5. 6, 2 R; 9, 3 R; 3, 4 R; 6, 5 R; 9, 6 R. 6. 4, 2 R; 7, 3 R; 7, 7 R; 6, 3 R; 2, 5 R. 7. 8, 4 R; 2, 7 R; 5, 6 R; 6, 4 R; 5, 5 R. 8. 7, 5 R; 4, 3 R; 1, 7 R; 9, 1 R; 6, 1 R. 9. 3, 7 R; 9, 7 R; 5, 1 R; 8, 3 R; 3, 1 R. 10. 5, 2 R; 4, 5 R; 8, 6 R; 7, 2 R; 8, 5 R. 11. 6, 6 R; 3, 6 R; 9, 2 R; 8, 1 R; 5, 7 R. 12. 8, 2 R; 8, 7 R; 9, 4 R; 4, 6 R; 9, 5 R. 13. 19. 14. 27. 15. 18. 16. $1.19. 17. 32. 18. 25. 19. 76. 20. $1.17. 21. 49. 22. 73. 23. 59. 24. $2.01. 25. 120. 26. 92. 27. 67. 28. $1.60.

Page 241. 1. 4. 2. 7. 3. 3. 4. 2. 5. 1. 6. 8. 7. 9. 8. 32.

Page 242. 1. $5.50. 2. $1.50. 3. $17.49. 4. 15¢. 5. $1.44. 6. $4.75.

Page 244. 1. 17. 2. 85. 3. 78. 4. 83. 5. 62. 6. 8. 7. 35. 8. 84. 9. 53. 10. 86. 11. 71. 12. 82. 13. 87. 14. 44. 15. 88. 16. 26. 17. 80. 18. 66. 19. 909. 20. 7264. 21. 6279. 22. 4670. 23. $35.34. 24. 3516. 25. 8730. 26. 7912. 27. 3445. 28. $48.86. 29. 2376. 30. 6629. 31. 4734. 32. 4167. 33. $77.85. 34. 7712. 35. 6272. 36. 2655. 37. 3840. 38. $30.00. 39. 2691. 40. 5173. 41. 1956. 42. 7911. 43. $53.60.

Page 245. 1. $4.50. 2. $3.00. 3. $11.61. 4. $35.82. 5. $3.25. 6. $3.00. 7. $1.02. 8. $3.24.

Page 246. 1. 13¢; 11¢; 10¢; 9¢; 7¢; 4¢; 17¢. 2. 8¢; 14¢; 12¢; 3¢; 6¢; 5¢; 22¢. 3. 35¢; 25¢; 20¢; 15¢; 10¢; 30¢; 40¢. 4. 32¢; 9¢; 22¢; 33¢; 18¢; 23¢; 11¢. 5. 77¢; 85¢; 65¢; 40¢; 91¢; 58¢; 15¢. 6. 88¢; 63¢; 28¢; 7¢; 93¢; 32¢; 54¢. 8. Yes. 10. $0.25. 11. $0.10. 12. $0.50. 13. $0.75. 14. $0.25. 15. $0.50. 16. $1.75. 17. $2.50.

Page 249. 1. 1; 6¢. 2. 1; 1¢. 3. 1; 3. 4. 7¢. 5. 6. 6. 4. 7. 3. 8. 8. 9. 8. 10. 7. 11. 5. 12. 8. 13. 4. 14. 7. 15. 6. 16. 5. 17. 8. 18. 7. 19. 6. 20. 6. 21. 8. 22. 7. 23. 8. 24. 7. 25. 6. 26. 8. 27. 6. 28. 7. 29. 6. 30. 7. 31. 5. 32. 8.

Page 250. 1. 1; 3. 2. 2; 2 in. 3. 2; 3 lb. 4. 2; 7. 5. 2, 7 R. 6. 3, 6 R. 7. 5, 5 R. 8. 4, 5 R. 9. 3, 3 R. 10. 5, 3 R. 11. 3, 7 R. 12. 6, 1 R. 13. 9, 6 R. 14. 4, 3 R. 15. 1, 5 R. 16. 5, 4 R. 17. 3, 1 R. 18. 4, 6 R. 19. 4, 1 R. 20. 6, 6 R. 21. 7, 8 R. 22. 2, 1 R. 23. 3, 8 R. 24. 1, 6 R. 25. 2, 8 R. 26. 1, 8 R. 27. 7, 6 R. 28. 2, 4 R. 29. 2, 3 R. 30. 8, 6 R. 31. 4, 7 R. 32. 5, 7 R. 33. 1, 7 R. 34. 2, 6 R. 35. 3, 5 R. 36. 4, 8 R.

Page 251. 1. 6, 7 R; 2, 2 R; 3, 4 R; 2, 5 R; 1, 1 R. 2. 5, 2 R; 5, 6 R; 6, 3 R; 7, 3 R; 7, 6 R. 3. 6, 5 R; 7, 4 R; 6, 8 R; 9, 3 R; 1, 4 R. 4. 9, 7 R; 8, 8 R; 5, 8 R; 5, 1 R; 2, 6 R. 5. 8, 1 R; 3, 2 R; 9, 8 R; 7, 7 R; 5, 5 R. 6. 4, 2 R; 8, 4 R; 8, 5 R; 9, 1 R; 1, 2 R. 7. 7, 1 R; 6, 4 R; 4, 4 R; 8, 3 R; 8, 6 R. 8. 9, 2 R; 8, 2 R; 7, 5 R; 9, 5 R; 4, 6 R. 9. 6, 2 R; 7, 2 R; 9, 4 R; 8, 7 R; 1, 3 R. 10. 36. 11. 59. 12. 64. 13. $3.00. 14. 92. 15. 90. 16. 86. 17. $2.10. 18. 29. 19. 98. 20. 48. 21. $2.01. 22. 87. 23. 69. 24. 93. 25. $2.17. 26. 78. 27. 79. 28. 57. 29. $8.90. 30. 76. 31. 45. 32. 83. 33. $3.21. 34. 84. 35. 49. 36. 65. 37. $5.24.

Page 253. 1. 60. 2. 3 qt. 3. 3. 5. 4. 6. 2. 7. 1 lb.; 1 oz. 8. April, June, September, November. 9. Product; difference or remainder; quotient; sum. 11. 2. 12. 4. 13. 35¢. 14. February. 15. 6. 17. 6. 18. 0.

Page 254. 1. 2838. 2. 2811. 3. 3039. 4. 2124. 5. 1267. 6. 496. 7. 536. 8. 488. 9. 348. 10. 369. 11. 549. 12. 629. 13. 457. 14. 349. 15. 479. 16. 5274. 17. 5943. 18. 2961. 19. 5192. 20. 8874. 21. 3516. 22. 3969. 23. 8586. 24. 4540. 25. 6856. 26. 450. 27. 84. 28. 65. 29. 32. 30. 120. 31. 67. 32. 56. 33. 32. 34. 124. 35. 78. 36. 75. 37. 69.

Page 258. 10. 6000. 11. 60,000. 12. 15,000. 13. 46,000. 25. Fourteen thousand. 26. Forty-five thousand three hundred. 27. Seventy-two thousand nine hundred forty. 28. Eighteen thousand eighteen. 29. Ninety thousand nine. 30. Thirty-six thousand five hundred two.

Page 259. 1. 12; 6; 11; 15; 14; 11; 12; 8; 9. 2. 12; 18; 11; 10; 13; 12; 9; 6; 9. 3. 9; 7; 14; 10; 10; 16; 12; 17; 7. 4. 8; 6; 8; 15; 8; 13; 11; 13; 10. 5. 9; 13; 11; 14; 5; 10; 9; 10; 17. 6. 9; 8; 9; 15; 11; 14; 13; 8; 12. 7. 0; 6; 16; 7; 10; 11; 8; 13; 7. 8. 9; 7; 12; 16; 10; 14; 15; 5; 11.

Page 260. 8. 53. 9. 43. 10. 62. 11. 44. 12. 93. 13. 77. 14. 76. 15. 55. 16. 60. 17. 46. 18. 95. 19. 33. 20. 65. 21. 44. 22. 87. 23. 52. 24. 38. 25. 47. 26. 43. 27. 74. 28. 52. 29. 35. 30. 91. 31. 61.

Page 262. 1. 42; 52; 21; 44; 31; 20; 50; 34. 2. 55; 51; 32; 52; 70; 23; 35; 61. 3. 52; 61; 50; 60; 53; 31; 54; 51. 4. 20; 41; 22; 30; 30; 40; 53; 41. 5. 60; 25; 50; 20; 33; 43; 26; 30. 6. 71; 54; 80; 63; 51; 22; 32; 33. 7. 24; 71; 62; 23; 40; 70; 34; 21. 8. 85; 99; 97; 86; 99; 76; 90; 68. 9. 77; 87; 95; 85; 76; 98; 76; 76.

Page 263. 1. 17. 2. 23. 3. 22. 4. 22. 5. 26. 6. 20. 7. 21. 8. 29. 9. 24. 10. 18. 11. 20. 12. 23. 13. 25. 14. 29. 15. 30. 16. 31. 17. 25. 18. 28. 19. 28. 20. 28. 21. 31.

Page 264. 1. 19. 2. 18. 3. 21. 4. 31¢. 5. 42¢. 6. 40¢. 7. 20. 8. 51¢.

Page 265. 1. 25. 2. 10. 3. 114. 4. 259. 5. 225 lb.

Page 266. 1. 276. 2. 235. 3. 237. 4. 272. 5. 272. 6. 293. 7. 278. 8. 194. 9. 250. 10. 281. 11. 301. 12. 282. 13. 234. 14. 288. 15. 189. 16. 217. 17. 225. 18. 245. 19. 299. 20. 229. 21. 307. 22. 279. 23. 244. 24. 301.

Page 267. 1. 89. 2. 89. 3. 155. 4. 1489. 5. 1387. 6. 25. 7. 32. 8. 131. 9. 242. 10. 1204. 11. 171. 12. 185. 13. 273. 14. 1301. 15. 2471. 16. 2916. 17. 2392. 18. 2728. 19. 3753. 20. 2504. 21. $21.06. 22. $24.13. 23. $33.27. 24. $29.27.

Page 268. 1. 249. 2. $12.23. 3. 737. 4. $6.15. 5. $7.55.

Page 270. 1. 23; 43; 6; 26; 7; 16; 46; 35; 14. 2. 8; 18; 37; 9; 36; 18; 54; 24; 74. 3. 83; 6; 36; 55; 9; 30; 17; 75; 17. 4. 54; 15; 40; 9; 67; 24; 5; 19; 27. 5. 18; 8; 19; 96; 15; 70; 18; 28; 41. 6. 5; 18; 54; 4; 70; 17; 37; 95; 27. 7. 40; 9; 13; 66; 23; 9; 60; 32; 18. 8. 98; 13; 80; 6; 64; 25; 80; 17; 25. 9. 50; 71; 79; 26; 63; 16; 59; 37; 8.

Page 271. 1. 7; 8; 9; 9; 7; 9; 6; 7. 2. 36; 84; 52; 73; 14; 182; 644; 317. 3. 46; 86; 25; 39; 88; 116; 188; 127. 4. 25; 36; 37; 67; 37; 71; 93; 92. 5. 46; 7; 58; 25; 9; 84; 38; 80. 6. 46; 8; 56; 27; 39; 89; 49; 79. 7. 36; 48; 24; 9; 25; 585; 785; 764. 8. 16; 5; 8; 46; 17; 477; 677; 578.

Page 272. 1. 6. 2. 75¢. 3. 22. 4. 14¢. 5. 18. 6. 35¢. 7. 17 ft.

Page 273. 1. 333 lb.; 96 lb.; 13 lb.; 163 lb.; 226 lb.; 63 lb.; 259 lb.; 4 lb.; 43 lb.; 8 lb.; 79 lb.; 18 lb. 2. Ned and Dan. 3. Ida. 4. Paul. 5. Hal, Ida, Eva, Ada, Ned, Sue, Kate, Paul; Joe, Ann, Ella, Dan. 6. Ned; Hal.

Page 274. 1. 218. 2. 734. 3. 157. 4. 1084. 5. 928. 6. 214. 7. 398. 8. 479. 9. 3336. 10. 1804. 11. 586. 12. 541. 13. 259. 14. 6629. 15. 2858. 16. 79. 17. 289. 18. 269. 19. 2848. 20. 1788. 21. 435. 22. 169. 23. 375.

24. 878. 25. 699. 26. $2.09. 27. $4.07. 28. $3.78. 29. $0.52. 30. $3.96. 31. $6.07. 32. $2.79. 33. $2.85.

Page 275. 1. 45; 30; 36; 49; 10; 32; 54; 35; 27. 2. 56; 25; 28; 40; 36; 20; 54; 32; 63. 3. 36; 56; 27; 24; 63; 64; 15; 48; 12. 4. 21; 24; 40; 14; 24; 42; 20; 42; 15. 5. 72; 30; 81; 48; 35; 18; 72; 12; 28. 6. 240; 126; 200; 427; 420; 189; 648; 186; 350. 7. 168; 279; 630; 159; 368; 213; 728; 560; 549. 8. 560; 450; 324; 540; 426; 810; 497; 480; 637.

Page 276. 1. 348. 2. 534. 3. 117. 4. 485. 6. 180. 7. 158. 8. 416. 9. 148. 10. 342. 11. 486. 12. 368. 13. 182. 14. 657. 15. 270. 16. 258. 17. 188. 18. 435. 19. 448. 20. 294. 21. 873. 22. 472. 23. 291.

Page 278. 1. 735. 2. 888. 3. 864. 4. 374. 5. 903. 7. 2547. 8. 3162. 9. 1962. 10. 1548. 11. $66.22. 12. 4584. 13. 8667. 14. 5688. 15. 2268. 16. $67.92. 17. 5859. 18. 3663. 19. 4345. 20. 1596. 21. $48.96.

Page 279. 1. 0; 72; 49; 48; 21; 54; 24; 36; 36. 2. 48; 28; 0; 56; 27; 40; 63; 0; 54. 3. 56; 81; 32; 42; 0; 36; 64; 63; 24. 4. 0; 27; 28; 72; 42; 0; 32; 45; 18. 5. 153. 6. 186. 7. 405. 8. 369. 9. 427. 10. 450. 11. 882. 12. 536. 13. 273. 14. 470. 15. 3600. 16. 1260. 17. 6030. 18. 2000. 19. 5040. 20. 820. 21. 872. 22. 616. 23. 3540. 24. 5649.

Page 280. 1. $9.45. 2. 91¢. 3. 87¢. 4. $6.90. 5. 774. 6. $8.91.

Page 281. 1. 2; 5; 7; 9. 2. 5; 3; 6; 8. 3. 3; 5; 6; 4. 4. 5; 8; 3; 7. 5. 3; 5; 7; 9. 6. 7; 3; 8; 4. 7. 6; 4; 8; 7. 8. 9; 3; 8; 6. 9. 9. 10. 8. 11. 7. 12. 9. 13. 7. 14. 7. 15. 5. 16. 7. 17. 3. 18. 9; 4; 4; 6; 7; 7. 19. 8; 5; 6; 3; 8; 8. 20. 9; 4; 5; 7; 8; 5. 21. 8; 7; 9; 6; 8; 9.

Page 282. 1. 40¢. 2. $6. 3. 12¢. 4. $2. 5. $3. 6. $7.

Page 283. 1. 77. 2. 84. 3. 64. 4. 43. 5. 95. 6. 39. 7. 89. 8. 75. 9. 75. 10. 98. 11. 24. 12. 67. 13. 18. 14. 46. 15. 54. 16. 43. 17. 23. 18. 43. 19. 68. 20. 65. 21. 96. 22. 78. 23. 76. 24. 34. 25. 95. 26. 74. 27. 97. 28. 92. 29. 28. 30. 37. 31. 56. 32. 85. 33. 83. 34. 92. 35. 62. 36. 96. 37. 94. 38. 85. 39. 97. 40. 86.

Page 284. 1. 9; 6; 8; 5; 6; 7. 2. 7; 7; 4; 8; 9; 9. 3. 8; 8; 8; 6; 7; 1. 4. 6; 5; 9; 0; 7; 3. 5. 4; 5; 10; 4; 30; 11. 6. 12; 6; 5; 9; 11; 0. 7. 7; 10; 11; 10; 6; 7. 8. 42. 9. 32. 10. 20. 11. $0.20. 12. 73. 13. 61. 14. 31. 15. $0.31. 16. 60. 17. 50. 18. 80. 19. $0.50. 20. 110. 21. 204. 22. 123. 23. $1.10. 24. 108. 25. 107. 26. 107. 27. $1.09. 28. 53. 29. 33. 30. 97. 31. $0.98. 32. 43. 33. 35. 34. 42. 35. $0.82. 36. 91. 37. 92. 38. 60. 39. $3.10. 40. 108. 41. 98. 42. 45. 43. $0.83. 44. 37. 45. 63. 46. 74. 47. $0.99.

Page 285. 1. 7877 miles. 2. $2845. 3. 5485. 4. 7559 lb. 5. 2293. 6. 12,395. 7. 24,958. 8. 4055.

Page 286. 1. 21,502. 2. 23,939. 3. 16,300. 4. $1839.52. 5. 21,457. 6. 18,760. 7. 16,919. 8. $2307.94. 9. 21,423. 10. 16,651. 11. 14,377. 12. $2431.19. 13. 22,174. 14. 15,184. 15. 25,196. 16. $1797.39. 17. 22,187. 18. 20,101. 19. 21,738. 20. $2588.39.

Page 287. 1. $32.75. 2. $325. 3. Nell, Ruth, Ida, Nina.

Page 288. 1. 26,578. 2. 34,884. 3. 11,936. 4. 27,138. 5. 46,587. 6. 36,975. 7. 36,942. 8. 43,548. 9. 49,550. 10. 54,538. 11. 57,478. 12. 76,129. 13. 17,690. 14. 19,264. 15. 30,617. 16. 39,873. 17. 54,267. 18. 35,484. 19. 57,938. 20. 37,413. 21. $74.96. 22. $45.70. 23. $7.39. 24. $47.94. 25. $77.79. 26. $18.98. 27. $21.89. 28. $26.56. 29. $28.55. 30. $73.78. 31. $26.23. 32. $12.39.

Page 290. 21. $8. 22. 6. 23. 9. 24. 4.

Page 292. 1. 320. 2. 450. 3. 920. 4. 62,400. 5. 126,900. 6. 6580. 7. 4920. 8. 8640. 9. 87,600. 10. 436,800. 11. 3900. 12. 7680. 13. 5220. 14. 453,600. 15. 888,300. 16. 4750. 17. 5040. 18. 7830. 19. 6080. 20. 5880. 21. 3760. 22. 4760. 23. 5820. 24. 295,800. 25. 378,600. 26. 758,400. 27. 606,900.

Page 293. 26. 5; 7. 27. 5. 28. $2. 29. $8. 30. 25 lb. 31. 12 hr.

Page 294. 16. 4. 17. 12.

Page 295. 17. 72. 18. 36.

Page 296. 24. 5. 25. 3¢. 26. $2.

Page 297. 1. 8¢. 2. 60. 3. Yes. 4. 108. 5. 60 lb. 6. 10. 7. 96.

Page 298. 1. 15. 2. 35¢. 3. 35 min. 4. 6¢. 5. 4. 6. 6 lb. 7. 21. 8. 9¢. 9. 5¢. 10. 42.

Page 299. 1. 672. 2. 276. 3. 714. 4. 682. 5. 546. 6. 1696. 7. 1476. 8. 1664. 9. 882. 10. 1435. 11. 1166. 12. 1376. 13. 1633. 14. 840. 15. 759. 16. 648. 17. 2573. 18. 966. 19. 2208. 20. 589. 21. 3096. 22. 6860. 23. 6399. 24. 5734. 25. 2296. 26. 1008. 27. 2580. 28. 7098. 29. 5820. 30. 6966.

Page 300. 1. 4838. 2. 2880. 3. 2496. 4. 4067. 5. 2484. 6. 4399. 7. 3792. 8. 2655. 9. 3922. 10. 2050. 11. 2772. 12. 1560. 13. 1176. 14. 3870. 15. 2765. 16. 3591. 17. 4940. 18. 2368. 19. 2544. 20. 2016. 21. 1786. 22. 1827. 23. 6080. 24. 3034. 25. 3536. 26. 3792. 27. 2494. 28. 3393. 29. 7008. 30. 8544. 31. 2784. 32. 5688. 33. 5848. 34. 7426. 35. 2679. 36. 8928. 37. 5015. 38. 4116.

Page 301. 1. 228. 2. 375. 3. 756. 4. 273. 5. 420. 6. 468. 7. 224. 8. 4224.

Page 302. 21. 3645. 22. 5890. 23. 1886. 24. 3445. 25. 9024. 26. 6003. 27. 5229. 28. 1539. 29. 1064. 30. 8556. 31. 8148. 32. 6528.

Page 303. 1. 5244. 2. 7224. 3. 2726. 4. 8051. 5. 3354. 6. 3577. 7. 7347. 8. 5244. 9. 6432. 10. 4512. 11. 1809. 12. 7056. 13. 3808. 14. 7252. 15. 5695. 16. 3654. 17. 9312. 18. 4582.

Page 304. 1. 3015. 2. 3116. 3. 3744. 4. 5292. 5. 6693. 6. 5162. 7. 3216. 8. 1475. 9. 3686. 10. 4897. 11. 5481. 12. 1998. 13. 6348. 14. 2403. 15. 629. 16. 2028. 17. 972. 18. 1961.

Page 305. 1. 1440. 2. 208. 3. 360. 4. 475. 5. 1008. 6. 525. 7. 756. 8. 744. 9. 672.

Page 306. 1. 4473. 2. 29,536. 3. 23,868. 4. 16,025. 5. 35,952. 6. 59,535. 7. 43,004. 8. 4641. 9. 36,856. 10. 69,225. 11. 24,102. 12. 19,975. 13. 39,536. 14. 31,198. 15. 62,292. 16. 2625. 17. 4095. 18. 6972. 19. 7200 lb. 20. 8352. 21. 18,225 lb.

Page 308. 1. $11.96. 2. $13.12. 3. $27.90. 4. $7.14. 5. $17.92. 6. $46.80. 7. $43.92. 8. $25.76. 9. $32.68. 10. $54.40. 11. $68.80. 12. $92.56. 13. $113.61. 14. $132.72. 15. $119.99. 16. $14.31. 17. $108.12. 18. $290.29. 19. $234.09. 20. $223.44. 21. $218.29. 22. $487.78. 23. $64.78. 24. $186.96. 25. $702.62. 26. $247.86. 27. $217.98. 28. $759.72. 29. $715.26. 30. $523.80. 31. $916.75. 32. $553.77. 33. $661.27. 34. $877.85. 35. $385.92. 36. $584.80. 37. $796.18. 38. $225.40. 39. $115.52. 40. $466.44.

Page 309. 1. $2.10. 2. $1.50. 3. $2.50. 4. $9.84. 5. $16.38. 6. $13.86. 7. $14.56. 8. $3.50. 9. $5.60. 10. $8.10. 11. $3.00. 12. $1.95. 13. $3.96. 14. $6.75. 15. $3.78.

Page 310. 1. 8673. 2. 1599. 3. 9072. 4. 5082. 5. 5603. 6. 7176. 7. 4914. 8. 24,128. 9. 7890. 10. 40,488. 11. 49,356. 12. 49,980. 13. 49,849. 14. 39,192. 15. 36,038. 16. 44,608. 17. 47,328. 18. 69,125. 19. 18,846. 20. 83,838.

Page 311. 1. Sum. 2. 7, 1 R; remainder. 3. $56. 4. 5274. 5. $76.86. 6. 79. 7. Product. 8. $4.61. 9. 4. 10. 27. 11. Decimal point. 12. $41.75; $292.76; $8.36. 13. Difference, or remainder. 14. 2.

Page 312. 1. 13,052. 2. 14,509. 3. 12,488. 4. 17,705. 5. 4158. 6. 5567. 7. 7264. 8. 3728. 9. 9672. 10. 10,062. 11. 10,048. 12. 18,042. 13. 3553. 14. 18,096. 15. 15,484. 16. 47,190. 17. 13,708. 18. 51,246. 19. 98. 20. 87. 21. 67. 22. 59. 23. 89. 24. 75. 25. 78. 26. 74. 27. 64. 28. 95. 29. 83. 30. 68. 31. 56. 32. 72. 33. 98. 34. 97.

Page 314. 14. 18,800. 15. 60,060. 16. 251,007. 17. Fifteen thousand six hundred seventy-eight. 18. Eighteen thousand seven hundred sixty-five. 19. Twenty-nine thousand four hundred fifty-seven. 20. Forty-six thousand three hundred ninety-two. 21. Sixty-seven thousand nine hundred thirty. 22. Fifty thousand five hundred five. 23. Two hundred sixty-five thousand nine hundred ninety-nine. 24. Three hundred seventy-three thousand one.

Page 315. 17. $4500. 18. $1902. 19. $1500.60. 20. $21,980.75.

Page 316. 3. XIV; XVIII; XV; XIX; XVII. 4. 21; 25; 22; 24; 29; 26. 5. XXXV; XXXII; XXXIV; XXXVIII; XXXIII; XXXVII; XXXVI; XXXIX. 6. 19; 21; 39; 14.

Page 317. 1. 63, 1 R. 2. 44, 2 R. 3. 82, 1 R. 4. 42, 1 R. 5. 31, 3 R. 6. 52, 2 R. 7. 32, 1 R. 8. 31, 3 R. 9. 71, 3 R. 10. 21, 1 R.

Page 318. 1. 5, 3. 2. 8, 2. 3. 2, 4. 4. 4, 3. 5. 7, 3. 6. 7, 2. 7. 8, 5. 8. 7, 4. 9. 8, 3. 10. 9, 2 R. 11. 5, 7 R. 12. 5, 4 R. 13. 9, 3 R. 14. 9, 2 R. 15. 6, 5 R. 16. 6, 3 R. 17. 9, 2 R. 18. 5, 6 R. 19. 9, 8 R. 20. 8, 2 R. 21. 5, 2 R. 22. 8, 3 R. 23. 6, 8 R. 24. 6, 4 R. 25. 7, 1 R. 26. 9, 6 R. 27. 7, 5 R. 28. 4, 6 R. 29. 5, 3 R. 30. 6, 2 R. 31. 6, 1 R; 7, 7 R; 8, 5 R; 9, 5 R; 4, 3 R; 8, 2 R. 32. 9, 6 R; 3, 4 R; 2, 5 R; 8, 1 R; 8, 7 R; 4, 4 R. 33. 8, 6 R; 9, 4 R; 9, 1 R; 5, 7 R; 8, 8 R; 9, 4 R. 34. 7, 3 R; 9, 5 R; 8, 4 R; 9, 5 R; 7, 8 R; 7, 5 R.

Page 319. 1. 7. 2. 7; 2. 3. 8; 2¢. 4. 7; 7. 5. 6; 1¢. 6. 4; 3. 7. 6; 6. 8. 9; 3.

Page 320. 1. 4, 1 R; 9, 2 R; 4, 3 R; 6, 1 R; 6, 2 R; 9, 2 R. 2. 5, 4 R; 5, 2 R; 3, 3 R; 8, 2 R; 2, 4 R; 9, 3 R. 3. 8, 1 R; 5, 2 R; 7, 1 R; 6, 1 R; 8, 1 R; 7, 1 R. 4. 8, 1 R; 9, 2 R; 5, 5 R; 5, 1 R; 3, 5 R; 6, 3 R. 5. 6, 1 R; 4, 2 R; 4, 1 R; 2, 3 R; 5, 2 R; 8, 3 R. 6. 2, 2 R; 7, 2 R; 3, 1 R; 9, 1 R; 2, 4 R; 5, 3 R. 7. 8, 4 R; 3, 1 R; 4, 3 R; 7, 2 R; 7, 1 R; 8, 3 R. 8. 4, 2 R; 7, 3 R; 7, 1 R; 6, 1 R; 3, 3 R; 2, 1 R. 9. 6, 1 R; 3, 2 R; 9, 5 R; 8, 1 R; 5, 1 R; 5, 3 R. 10. 3, 3 R; 9, 1 R; 7, 4 R; 8, 2 R; 8, 2 R; 9, 2 R. 11. 9, 1 R; 1, 5 R; 8, 6 R; 2, 2 R; 9, 3 R; 6, 2 R. 12. 2, 1 R; 6, 3 R; 7, 5 R; 9, 4 R; 7, 4 R; 9, 2 R. 13. 2, 2 R; 9, 1 R; 6, 4 R; 4, 3 R; 9, 3 R; 9, 2 R. 14. 9, 1 R; 8, 2 R; 7, 5 R; 4, 1 R; 2, 3 R; 6, 5 R. 15. 2, 1 R; 9, 1 R; 6, 3 R; 6, 3 R; 8, 6 R; 1, 8 R. 16. 4, 3 R; 3, 2 R; 9, 4 R; 9, 4 R; 11, 2 R; 6, 4 R. 17. 7, 2 R; 8, 5 R; 7, 2 R; 9, 3 R; 8, 5 R; 9, 5 R.

Page 321. 1. 5; 7. 2. 4; 3. 3. 2; 5. 4. 8; 2¢. 5. 8; 4. 6. 12; 7.

Page 322. 1. 242, 1 R. 2. 211, 3 R. 3. 321, 1 R. 4. 322, 1 R. 5. 411, 1 R. 6. 121, 1 R. 7. 324, 1 R. 8. 231, 1 R. 9. 222, 1 R. 10. 111, 2 R. 11. 91, 1 R. 12. 51, 1 R. 13. 111, 3 R. 14. 61, 2 R. 15. 74, 1 R. 16. 21, 1 R. 17. 81, 1 R. 18. 71, 2 R. 19. 92, 2 R. 20. 31, 1 R. 21. 55. 22. 35. 23. 49. 24. 63. 25. 45. 26. 32. 27. 45. 28. 46. 29. 37. 30. 36. 31. 57. 32. 91. 33. 32. 34. 398, 1 R. 35. 51. 36. 201, 1 R. 37. 467. 38. 82, 1 R. 39. 98. 40. 45. 41. 68, 3 R. 42. 17. 43. 38, 1 R. 44. 96, 3 R. 45. 52. 46. 96. 47. 49, 3 R. 48. 72, 4 R. 49. 75. 50. 278, 1 R. 51. 83. 52. 69, 2 R. 53. 83, 1 R. 54. 76, 3 R. 55. 62. 56. 91, 2 R. 57. 74, 7 R. 58. 94. 59. 55, 1 R. 60. 86, 6 R. 61. 42, 3 R. 62. 87, 1 R. 63. 73, 4 R. 64. 15.

Page 323. 1. 74, 1 R. 2. 36. 3. 85. 4. 128, 1 R. 5. 169, 3 R. 6. 89, 4 R. 7. 59, 6 R. 8. 96, 5 R. 9. 185, 4 R. 10. 122, 4 R. 11. 82, 1 R. 12. 96, 1 R.

Page 324. 1. 18; 2. 2. 13; 3. 3. 14; 5. 4. 14; 6. 5. 18; 1. 6. 22; 2.

Page 325. 1. 2091. 2. 203. 3. 703. 4. 906. 5. 908. 6. 1012. 7. 705. 8. 608. 9. 4809. 10. 1701. 11. 1203. 12. 704, 3 R. 13. 1003. 14. 902. 15. 1006. 16. 1008. 17. 2802. 18. 1207, 3 R. 19. 1904, 1 R. 20. 1501. 21. 4507, 1 R. 22. 1003. 23. 309. 24. 907, 1 R. 25. 2005, 1 R. 26. 2004, 1 R. 27. 1007, 1 R. 28. 1003, 2 R. 29. 1205. 30. 1401, 2 R. 31. 1009, 4 R. 32. 1304. 33. 906. 34. 1405. 35. 808, 5 R. 36. 1506.

Page 326. 1. 190. 2. 170. 3. 90. 4. 120. 5. 150. 6. 160. 7. 350. 8. 290. 9. 150. 10. 170. 11. 180. 12. 140. 13. 120. 14. 130. 15. 140. 16. 260. 17. 1220. 18. 1420. 19. 1420. 20. 1640.

Page 327. 1. 130, 1 R. 2. 120, 3 R. 3. 120, 2 R. 4. 130, 3 R. 5. 90, 2 R. 6. 140, 5 R. 7. 170, 2 R. 8. 240, 3 R. 9. 90, 3 R. 10. 90, 2 R. 11. 80, 3 R. 12. 90, 5 R. 13. 90, 4 R. 14. 480, 1 R. 15. 80, 2 R. 16. 390, 1 R. 17. 80, 5 R. 18. 90, 7 R. 19. 70, 6 R. 20. 80, 5 R. 21. 90, 3 R. 22. 80, 5 R. 23. 70, 8 R. 24. 80, 3 R. 25. 60, 8 R. 26. 200, 3 R. 27. 200, 1 R. 28. 70, 6 R. 29. 300, 2 R. 30. 400, 1 R. 31. 20, 3 R. 32. 140, 3 R. 33. 70, 5 R. 34. 100, 7 R. 35. 140, 5 R. 36. 120, 7 R.

Page 328. 1. $1.25. 2. $0.59. 3. $1.32. 4. $0.96. 5. $0.42. 6. $0.88. 7. $3.56. 8. $0.56. 9. $1.80. 10. $0.35. 11. $6.12. 12. $4.32. 13. $0.34, 2¢ R. 14. $0.82, 1¢ R. 15. $7.61, 3¢ R. 16. $7.62, 1¢ R. 17. $7.80, 5¢ R. 18. $7.79, 3¢ R.

Page 329. 4. 7; 31; 30; 28 or 29. 5. 10 years; 5. 6. John's brother; February.

Page 331. 1. 225; 205. 2. 8 hr. 30 min. 3. 6 hr. 45 min. 4. 14. 5. 8:20 A.M.; 12:05 P.M.; 4:10 P.M.

Page 332. 1. 15; 15; 15. 2. 30; 30. 3. 15; 30; 45. 4. 1; 2; 3. 5. 2 wk. 6. 15 da. 7. 6 mo. 8. 12 hr. 9. 30 sec. 10. 26 wk. 11. 1 wk. 12. 3 wk. 13. 3 mo. 14. 9 mo. 15. 6 hr. 16. 18 hr. 17. 7 da. 18. 21 da. 19. 15 sec. 20. $\frac{1}{4}$; $\frac{1}{2}$; $\frac{3}{4}$.

Page 333. 1. 54; 8; 36; 15; 8; 13; 4; 16. 2. 17; 6; 14; 7; 72; 8; 72; 7. 3. 9; 8; 81; 5; 15; 14; 6; 14. 4. 13; 48; 6; 54; 6; 13; 6; 27. 5. 63; 9; 13; 5; 36; 7; 42; 5. 6. 14; 7; 56; 9; 11; 7; 12; 8. 7. 9; 49; 9; 16; 8; 15; 3; 17. 8. 12; 12; 8; 45; 9; 15; 48; 4. 9. 56; 13; 7; 42; 9; 63; 3; 14.

Page 334. 2. 6. 3. 48. 4. 40. 5. 24. 6. 8. 7. 2. 8. 5. 9. 2.

Page 335. 2. 3. 3. 2. 4. 4; 8. 5. 8. 6. 80. 7. $1\frac{1}{4}$ gal. 8. 2. 9. 1. 10. 1. 11. 3. 12. 6. 13. 5.

Page 336. 1. 12; 3. 2. 2. 3. 2. 4. $\frac{1}{3}$; $\frac{2}{3}$. 5. 4; 8. 6. 8 in. 7. 3 in. 8. 9 in. 9. 1 ft. 10. 2 ft. 11. 24 in. 12. 18 in. 13. 9 in. 14. 27 in.

Page 337. 2. 4000. 3. 20. 4. 800. 5. 1925. 6. 48. 7. 8. 8. 4. 9. 12. 10. 24. 11. 10,000. 12. 1000. 13. 1500. 14. 500. 15. 3000.

Page 338. 1. 2566; 566. 2. 10; 20. 3. 8. 4. 8. 5. 20. 6. 1000. 7. 18.

Page 341. 1. $48\frac{1}{2}$. 2. $17\frac{1}{3}$. 3. $18\frac{1}{4}$. 4. $15\frac{5}{8}$. 5. $122\frac{6}{7}$. 6. $32\frac{2}{3}$. 7. $29\frac{1}{2}$. 8. $13\frac{5}{7}$. 9. $19\frac{4}{5}$. 10. $119\frac{1}{8}$. 11. $14\frac{1}{6}$. 12. $12\frac{5}{7}$. 13. $21\frac{3}{4}$. 14. $12\frac{5}{6}$. 15. $298\frac{1}{8}$. 16. $18\frac{4}{5}$. 17. $19\frac{3}{5}$. 18. $13\frac{7}{7}$. 19. $27\frac{1}{3}$. 20. $149\frac{3}{5}$. 21. $11\frac{7}{7}$. 22. $13\frac{3}{5}$. 23. $24\frac{3}{4}$. 24. $23\frac{1}{3}$. 25. $111\frac{2}{5}$. 26. $15\frac{3}{5}$. 27. $12\frac{3}{8}$. 28. $11\frac{3}{8}$. 29. $7\frac{4}{7}$. 30. $138\frac{4}{5}$. 31. $9\frac{3}{5}$. 32. $6\frac{3}{7}$. 33. $28\frac{1}{3}$. 34. $7\frac{3}{5}$. 35. $96\frac{3}{8}$. 36. $16\frac{1}{4}$. 37. $12\frac{1}{8}$. 38. $9\frac{6}{5}$. 39. $8\frac{5}{5}$. 40. $73\frac{4}{7}$. 41. $6\frac{6}{8}$. 42. $18\frac{3}{5}$. 43. $6\frac{1}{8}$. 44. $7\frac{7}{8}$. 45. $233\frac{3}{4}$.

Page 342. 1. 10¢. 2. $4\frac{1}{6}$¢. 3. $2\frac{5}{6}$¢. 4. $7\frac{1}{2}$¢. 5. $17\frac{1}{2}$¢. 6. $5\frac{5}{6}$¢. 7. $10\frac{5}{6}$¢. 8. $3\frac{1}{3}$¢. 9. $4\frac{1}{6}$¢. 10. $49\frac{1}{2}$¢. 11. $37\frac{1}{2}$¢.

Page 344. 1. 52. 2. 54 lb. 3. 88. 4. 90. 5. 90. 6. 58. 7. $1.60. 8. 164 miles.

Page 345. 1. $8\frac{1}{3}$. 2. $28\frac{7}{8}$. 3. $18\frac{1}{5}$. 4. $30\frac{6}{6}$. 5. $63\frac{1}{3}$. 6. $92\frac{1}{5}$.

Page 346. 1. $9\frac{1}{4}$ sec. 2. $11\frac{1}{5}$ sec. 3. $19\frac{1}{5}$ sec. 4. $18\frac{1}{3}$ sec. 5. $13\frac{3}{5}$ sec.

Page 347. 1. 33. 2. 36. 3. 32. 4. 29. 5. 29. 6. 28. 7. 25. 8. 235. 9. 272. 10. 325. 11. 294. 12. 257. 13. 305. 14. 356. 15. 391. 16. 306. 17. 360. 18. 437. 19. 330.

Page 348. 1. 2536. 2. 2554. 3. 2487. 4. 2655. 5. 32,809. 6. 23,787. 7. 24,758. 8. 33,628. 9. 5765. 10. 80,748. 11. 74,789. 12. $367.67. 13. 5776. 14. 46,815. 15. 68,945. 16. $468.83. 17. 2442. 18. 36,532. 19. 60,663. 20. $248.75. 21. 3245. 22. 32,197. 23. 2988. 24. $449.09.

Page 349. 1. $17.75. 2. $5.86. 3. $23.75. 4. 258,460. 5. 18,942.

Page 350. 1. 21. 2. 42¢. 3. 6. 4. 4. 5. 56. 6. 30¢. 7. $1.80. 8. 5¢. 9. 46 miles. 10. 15.

Page 351. 1. 1170. 2. 986. 3. 2088. 4. 5913. 5. 5452. 6. 1539. 7. 3479. 8. 2496. 9. 1288. 10. 6882. 11. 3995. 12. 5070. 13. 1682. 14. 3219. 15. 9120. 16. 5624. 17. 3588. 18. 7310. 19. 1360. 20. 2520. 21. 5890. 22. 15,801. 23. 34,713. 24. 5684. 25. 2548. 26. 4292. 27. 24,960. 28. 14,896. 29. 3360. 30. 9118. 31. 2625. 32. 27,744. 33. 22,080. 34. 1710. 35. 1888. 36. 1160. 37. 65,660. 38. 47,700.

Page 352. 1. $7.28. 2. $4.90. 3. $6.25. 4. $9.72. 5. $32.88. 6. $58.83. 7. $152.96. 8. $415.53. 9. $51.00. 10. $151.80. 11. $98.42. 12. $310.70. 13. $271.86. 14. $262.08. 15. $638.02. 16. $81.60. 17. $697.76. 18. $212.55. 19. $858.48. 20. $31.28. 21. $733.40. 22. $318.01. 23. $535.86. 24. $905.28.

Page 353. 1. 6, 1 R; 4, 1 R; 3, 1 R; 2, 3 R. 2. 14; 9, 1 R; 7; 5, 3 R. 3. 8; 5, 1 R; 4; 3, 1 R. 4. 16; 10, 2 R; 8; 6, 2 R. 5. 12; 8; 6; 4, 4 R. 6. 9; 6; 4, 2 R; 3, 3 R. 7. 16, 1 R; 11; 8, 1 R; 6, 3 R. 8. 7; 4, 2 R; 3, 2 R; 2, 4 R. 9. 7, 1 R; 5; 3, 3 R; 3. 10. 11, 1 R; 7, 2 R; 5, 3 R; 4, 3 R. 11. 15, 1 R; 10, 1 R; 7, 3 R; 6, 1 R. 12. 13, 1 R; 9; 6, 3 R; 5, 2 R. 13. 10; 6, 2 R; 5; 4. 14. 8, 1 R; 5, 2 R; 4, 1 R; 3, 2 R. 15. 13; 8, 2 R; 6, 2 R; 5, 1 R. 16. 9, 1 R; 6, 1 R; 4, 3 R; 3, 4 R. 17. 14, 1 R; 9, 2 R; 7, 1 R; 5, 4 R. 18. 10, 1 R; 7; 5, 1 R; 4, 1 R. 19. 12, 1 R; 8, 1 R; 6, 1 R; 5. 20. 11; 7, 1 R; 5, 2 R; 4, 2 R. 21. 6, 1 R; 5, 2 R; 4, 5 R; 4, 1 R. 22. 8, 3 R; 7, 2 R; 6, 3 R; 5, 6 R. 23. 11, 2 R; 9, 5 R; 8, 4 R; 7, 5 R. 24. 7, 4 R; 6, 4 R; 5, 6 R; 5, 1 R. 25. 5, 1 R; 4, 3 R; 3, 7 R; 3, 4 R. 26. 3, 4 R; 3, 1 R; 2, 6 R; 2, 4 R. 27. 6, 3 R; 5, 4 R; 4, 7 R; 4, 3 R. 28. 7, 2 R; 6, 2 R; 5, 4 R; 4, 8 R. 29. 9, 5 R; 8, 3 R; 7, 3 R; 6, 5 R. 30. 5, 3 R; 4, 5 R; 4, 1 R; 3, 6 R. 31. 10, 1 R; 8, 5 R; 7, 5 R; 6, 7 R. 32. 9; 7, 5 R; 6, 6 R; 6. 33. 11, 1 R; 9, 4 R; 8, 3 R; 7, 4 R. 34. 9, 1 R; 7, 6 R; 6, 7 R; 6, 1 R. 35. 12, 4 R; 10, 6 R; 9, 4 R; 8, 4 R. 36. 8, 1 R; 7; 6, 1 R; 5, 4 R. 37. 13; 11, 1 R; 9, 6 R; 8, 6 R. 38. 10, 2 R; 8, 6 R; 7, 6 R; 6, 8 R. 39. 13, 1 R; 11, 2 R; 9, 7 R; 8, 7 R. 40. 8, 4 R; 7, 3 R; 6, 4 R; 5, 7 R. 41. 32. 42. 28. 43. 78. 44. $48\frac{3}{7}$. 45. $48\frac{4}{5}$. 46. $45\frac{3}{8}$. 47. 49. 48. $96\frac{3}{5}$. 49. $74\frac{1}{6}$. 50. 49. 51. $39\frac{2}{7}$. 52. $58\frac{3}{8}$. 53. $263\frac{4}{7}$. 54. $481\frac{4}{5}$. 55. $342\frac{5}{7}$. 56. $674\frac{3}{5}$. 57. $537\frac{5}{8}$. 58. $972\frac{7}{9}$.

Page 354. 1. $135\frac{5}{8}$. 2. $1491\frac{2}{3}$ lb. 3. 175 lb. 4. 498 lb. 5. $264\frac{1}{5}$ lb. 6. 147. 7. 132 lb. 8. 15,000 lb.

Page 357. 9. 4. 10. 1. 11. 1. 12. 4. 13. 2. 14. 2. 15. 2. 16. 3. 17. 6. 18. 2. 19. 4. 20. 9.

Page 358. 1. 90. 2. 51. 3. 96. 4. 71. 5. 84. 6. 62. 7. 324. 8. 123. 9. 540. 10. 560. 11. 355. 12. 208. 13. 155. 14. 488. 15. 426. 16. 208. 17. 567. 18. 459. 19. 546. 20. 126. 21. 728. 22. 120. 23. 189. 24. 224.

Page 359. 1. 3. 2. 4. 3. 14. 4. 12. 5. 64. 6. 18. 7. 91. 8. 32.

Page 360. 1. 98. 2. 81. 3. 64. 4. 95. 5. 98. 6. 57. 7. 59. 8. 96. 9. 57. 10. 87. 11. 72. 12. 92. 13. 97. 14. 98. 15. 97.

Page 361. 1. 55. 2. 11. 3. 44. 4. 0. 5. 77. 6. 99. 7. 66. 8. 33. 9. 88. 10. 4. 11. 9. 12. 40. 13. 80. 14. 60. 15. 90. 16. 200. 17. 500. 18. 700. 19. 300. 20. 96. 21. 72. 22. 108. 23. 36. 24. 60. 25. 84. 26. 6. 27. 8. 28. 9. 29. 8. 30. 6. 31. 80. 32. 10. 33. 70. 34. 50. 35. 200. 36. 90. 37. 400. 38. 300. 39. 2, 1 R; 1, 11 R. 40. 9; 8, 3 R. 41. 4, 4 R; 4. 42. 3, 2 R; 2, 11 R. 43. 7; 6, 5 R. 44. 8, 1 R; 7, 5 R. 45. 7, 1 R; 6, 6 R. 46. 5, 5 R; 5. 47. 5, 4 R; 4, 11 R. 48. 8, 7 R; 7, 11 R. 49. 6, 6 R; 6. 50. 3, 4 R; 3, 1 R. 51. 6, 2 R; 5, 8 R. 52. 5, 2 R; 4, 9 R. 53. 2, 3 R; 2, 1 R.

Page 362. 1. 17. 2. 21. 3. 32. 4. 54. 5. 23. 6. 45. 7. 34. 8. 62. 9. 31. 10. 53. 11. 51. 12. 63. 13. 362. 14. 272. 15. 817. 16. 635. 17. 816. 18. 713. 19. 540. 20. 436.

Page 363. 1. 21. 2. 32. 3. 83. 4. 72. 5. 23. 6. 57. 7. 73. 8. 62. 9. 74. 10. 22. 11. 33. 12. 15. 13. 41. 14. 64. 15. 71. 16. 321. 17. 723. 18. 416. 19. 612. 20. 332. 21. 741. 22. 414. 23. 632. 24. 312. 25. 413.

Page 364. 1. 32. 2. 23. 3. 35. 4. 25. 5. 26. 6. 45. 7. 42. 8. 33. 9. 31. 10. 22. 11. 41. 12. 21. 13. 125. 14. 316. 15. 126. 16. 131. 17. 428. 18. 213. 19. 233. 20. 313. 21. 323. 22. 142. 23. 123. 24. 321. 25. 413. 26. 216. 27. 415. 28. 135. 29. 215. 30. 361.

Page 365. 1. 44. 2. 24. 3. 12. 4. 32. 5. 16. 6. 22. 7. 17. 8. 18. 9. 21. 10. 21. 11. 14. 12. 18. 13. 13. 14. 19. 15. 12. 16. 16. 17. 22. 18. 55. 19. 65. 20. 111. 21. 112. 22. 71. 23. 212. 24. 61.

Page 366. 1. 13. 2. $18. 3. 11. 4. 22. 5. 132. 6. 71. 7. 12.

Page 367. 1. 12. 2. 14. 3. 24. 4. $125. 5. 24. 6. 13. 7. 29. 8. 14. 9. 27. 10. 18. 11. 14. 12. 18. 13. 22. 14. 21. 15. 18. 16. 19. 17. 16. 18. 15. 19. 32. 20. 32. 21. 15. 22. 28. 23. 23. 24. 17. 25. 33. 26. 19. 27. 23. 28. 41. 29. 16. 30. 19. 31. 22.

Page 368. 1. 3. 2. 7. 3. 9. 4. 8. 5. 9. 6. 9. 7. 12. 8. 16. 9. 25. 10. 22. 11. 21. 12. 16. 13. 16. 14. 13. 15. 21. 16. 11. 17. 11. 18. 13. 19. 11. 20. 11. 21. 22. 22. 121. 23. 121. 24. 121. 25. 125. 26. 111. 27. 113. 28. 111. 29. 211. 30. 121. 31. 211. 32. 113. 33. 111. 34. 111. 35. 112.

36. 22. 37. 112. 38. 111. 39. 213. 40. 211. 41. 212. 42. 112. 43. 213. 44. 111. 45. 123. 46. 111. 47. 211. 48. 212.

Page 369. 1. 4. 2. Long. 3. 7783. 4. 2. 5. $95.95. 6. 2; 3. 7. 213. 8. 45. 9. Roman. 10. 4. 11. 5. 12. 4. 13. 4. 14. 18. 15. 8. 16. 4. 17. 9. 18. 18. 19. Multiplication. 20. 15; afternoon.

Page 370. 1. 2319. 2. 2803. 3. 3251. 4. 3271. 5. $32.97. 6. 480. 7. 497. 8. 575. 9. 595. 10. $6.58. 11. 1653. 12. 5152. 13. 1824. 14. 1702. 15. 53,885. 16. 69,874. 17. 96. 18. 35. 19. 196. 20. 47. 21. 98. 22. 21. 23. 12. 24. 15. 25. 12. 26. 13. 27. 12. 28. 11. 29. 21. 30. 21. 31. 212. 32. 19. 33. 112. 34. 21. 35. 211. 36. 121. 37. 23.

Page 371. 17. 65,215. 18. 655,087. 19. 928,006. 20. 500,941.

Page 373. 6. 1,500,050. 7. 3,013,065. 8. 4,940,000. 9. 7,070,070. 10. 5,005,500. 11. 1,001,001. 12. 999,999; 9,999,999.

Page 374. 7. 32. 8. 39. 9. 41. 10. 53. 11. 65. 12. 91. 13. 155. 14. 1940. 15. XXV; XXXI; LXXXVII; DLXXX; CMXXIV.

Page 375. 1. 79. 2. 133. 3. 77. 4. 40. 5. 31. 6. 16. 7. 12. 8. 15. 9. 24. 10. 21. 11. 192. 12. 182. 13. 242. 14. 100. 15. 253. 16. 647. 17. 797. 18. 400. 19. $15.48. 20. 1083. 21. 7. 22. 8. 23. 18. 24. 25. 25. 46. 26. 37. 27. 46. 28. 4. 29. 18. 30. 27. 31. 462. 32. 340. 33. 77. 34. $3.04. 35. 407.

Page 376. 1. 17; 15; 13; 11; 13; 10; 10; 15; 11. 2. 10; 13; 12; 11; 8; 15; 13; 14; 13. 3. 14; 14; 13; 17; 11; 16; 12; 15; 10. 4. 16; 14; 12; 18; 11; 14; 11; 16; 11. 5. 8; 9; 5; 7; 5; 9; 7; 7; 8. 6. 9; 8; 9; 4; 6; 5; 7; 7; 8. 7. 8; 4; 6; 8; 6; 2; 8; 4; 3. 8. 6; 5; 9; 6; 6; 3; 9; 2; 8.

Page 377. 1. $42.66. 2. $48.05. 3. $51.13. 4. $74.57. 5. $61.35. 6. $51.70. 7. $62.37. 8. $67.46. 9. Grade IV. 10. $31.91; $26.52; $23.44; $13.22; $22.87; $12.20; $7.11. 11. $216.41. 12. $242.88. 13. $26.47.

Page 378. 2. 52. 3. 197; 372; 175. 4. 145. 5. 503. 6. 183.

Page 379. 1. 12; 7; 54; 15; 48; 18; 20; 0; 28. 2. 10; 56; 45; 12; 0; 18; 0; 20; 14. 3. 64; 10; 12; 16; 14; 12; 28; 1; 32. 4. 56; 24; 35; 54; 40; 63; 16; 36; 42. 5. 129. 6. 306. 7. 427. 8. 640. 9. $5.40. 10. 846. 11. 273. 12. 684. 13. 516. 14. $8.01. 15. 4575. 16. 1521. 17. 5580. 18. 2946. 19. $34.40. 20. 3483. 21. 6846. 22. 378. 23. 3390. 24. $63.44.

Page 380. 1. 119,196. 2. 254,526. 3. 243,984. 4. 291,412. 5. 627,808. 6. 181,300. 7. 247,680. 8. 203,665. 9. 147,030. 10. 110,622. 11. 461,774. 12. 642,408. 13. 293,562. 14. 271,580. 15. 850,059. 16. 123,288. 17. 484,224. 18. 345,950. 19. 456,968. 20. 639,846. 21. 932,795. 22. 331,425. 23. 361,458. 24. 534,942.

Page 381. 1. $473.11. 2. $1079.12. 3. $608.52. 4. $773.15. 5. $2740.26. 6. $2558.43. 7. $421.80. 8. $4667.49. 9. $6377.28. 10. $1989.48. 11. $6775.02. 12. $1393.20. 13. $2803.28. 14. $5422.44. 15. $6945.75. 16. $5571.92. 17. $4861.01. 18. $3386.25. 19. $8251.84. 20. $3880.96.

Page 382. 1. $209.88. 2. 56,940. 3. 41,496. 4. 83,448. 5. $756.00. 6. 56,004.

Page 383. 1. 44,730. 2. 148,050. 3. 474,390. 4. 328,320. 5. 711,980. 6. 440,640. 7. 590,320. 8. 487,160. 9. 906,200. 10. 335,250. 11. 657,940. 12. 334,080. 13. 382,940. 14. 856,950. 15. 169,050.

Page 384. 1. $183.75. 2. $28,000. 3. $16,896. 4. 129,065. 5. $39,975. 6. 22,344. 7. 15,360. 8. $16,500. 9. 33,810 lb. 10. $2262.00.

Page 385. 1. 226,176. 2. 79,755. 3. 344,187. 4. 500,536. 5. 53,955. 6. 379,488. 7. 475,335. 8. 509,292. 9. 487,966. 10. 464,820. 11. 156,238. 12. 177,888. 13. 763,938. 14. 698,796. 15. 543,872. 16. 356,570. 17. 676,348. 18. 342,333. 19. 264,918. 20. 586,829. 21. 660,100. 22. 445,252. 23. 127,296. 24. 284,746. 25. 589,761. 26. 326,835. 27. 590,205.

Page 386. 1. $327.25. 2. $542.50. 3. $257.50. 4. $245,000. 5. $205.92. 6. $359.38. 7. 41,328.

Page 387. 1. $0.11. 2. $0.12. 3. $0.21. 4. $0.11. 5. $0.12. 6. $0.14. 7. $0.25. 8. $0.43. 9. $0.31. 10. $0.45. 11. $1.21. 12. $2.13. 13. $4.61. 14. $3.11. 15. $4.76.

Page 388. 1. 111, 15 R. 2. 211, 17 R. 3. 112, 10 R. 4. 111, 15 R. 5. 112, 21 R. 6. 111, 2 R. 7. 22, 7 R. 8. 125, 12 R. 9. 121, 7 R. 10. 111, 11 R. 11. 123, 32 R. 12. 111, 26 R. 13. 19, 30 R. 14. 211, 24 R. 15. 32, 11 R. 16. 74, 15 R. 17. 39, 30 R. 18. 214, 21 R. 19. 56, 23 R. 20. 111, 5 R. 21. 111, 23 R. 22. 111, 6 R. 23. 121, 9 R. 24. 111, 25 R.

Page 389. 1. 61. 2. $21. 3. 24. 4. 15¢. 5. 27. 6. 31. 7. 43. 8. 57. 9. 44. 10. 23. 11. 22. 12. 47. 13. 365. 14. 41. 15. 274. 16. 41. 17. 131. 18. 231. 19. 271. 20. 311. 21. 421. 22. 34. 23. 171. 24. 51. 25. 222.

Page 390. 1. 15¢. 2. 11. 3. 25¢. 4. 20. 5. 22. 6. 41. 7. 79. 8. 32. 9. 22. 10. 12. 11. 33. 12. 44. 13. 23. 14. 24. 15. 64. 16. 12. 17. 42. 18. 31. 19. 441. 20. 43. 21. 22. 22. 118. 23. 231. 24. 32. 25. 332. 26. 21. 27. 21. 28. 42. 29. 121. 30. 96. 31. 231. 32. 121. 33. 331. 34. 321. 35. 42. 36. 43. 37. 42.

Page 391. 1. 16. 2. 12. 3. 16. 4. 37¢. 5. 18. 6. 66. 7. 15. 8. 36. 9. 44. 10. 35. 11. 28. 12. 48. 13. 35. 14. 337. 15. 64. 16. 351. 17. 281. 18. 561. 19. 151. 20. 681. 21. 661. 22. 197. 23. 181. 24. 331. 25. 441. 26. 87. 27. 182. 28. 198. 29. 282. 30. 353. 31. 45.

Page 392. 1. 42. 2. 34. 3. 59¢. 4. 49. 5. 22. 6. 15¢. 7. 35¢. 8. 32.

Page 393. 1. 90. 2. 45. 3. $14. 4. 41, 4 R. 5. 11, 6 R. 6. 24. 7. 13. 8. 12. 9. 29. 10. 13. 11. 14. 12. 16. 13. 34. 14. 42. 15. 267. 16. 96. 17. 31. 18. 25. 19. 23. 20. 115. 21. 25. 22. 118. 23. 24. 24. 148, 51 R. 25. 23, 73 R. 26. 23. 27. 232. 28. 25. 29. 81, 24 R. 30. 22. 31. 31. 32. 25. 33. 116, 1 R.

Page 394. 1. 90. 2. 80. 3. 90. 4. 70. 5. 70. 6. 90. 7. 80. 8. 90. 9. 70. 10. 60. 11. 70. 12. 70. 13. 90. 14. 90. 15. 80. 16. 80. 17. 750. 18. 160. 19. 460. 20. 230. 21. 270. 22. 470. 23. 560. 24. 350.

Page 395. 1. 3; 10. 2. 3; 10. 3. 30¢; 7¢. 4. 20, 12 R. 5. 10, 15 R. 6. 30, 7 R. 7. 10, 37 R. 8. 10, 15 R. 9. 30, 34 R. 10. 70, 9 R. 11. 30, 25 R. 12. 30, 7 R. 13. 40, 18 R. 14. 90, 10 R. 15. 70, 32 R. 16. 70, 17 R. 17. 80, 9 R. 18. 90, 15 R.

Page 397. 1. $1.05. 2. 32. 3. 16. 4. 23. 5. 14. 6. 25. 7. 16. 8. 12. 9. 15. 10. 12. 11. 51. 12. 302. 13. 101. 14. 102. 15. 101. 16. 103. 17. 105. 18. 226. 19. 409. 20. 709. 21. 908. 22. 305. 23. 604. 24. 2069. 25. 1009. 26. 2002.

Page 398. 1. 16; 0; 15; 16; 9; 13; 2; 63. 2. 14; 24; 10; 4; 16; 7; 7; 15. 3. 63; 9; 9; 14; 8; 11; 0; 17. 4. 10; 35; 11; 0; 8; 8; 27; 13. 5. 7; 18; 6; 42; 18; 32; 10; 64. 6. 72; 5; 49; 3; 54; 21; 8; 48. 7. 13; 0; 9; 81; 15; 24; 17; 6. 8. 10; 12; 56; 14; 4; 36; 9; 16. 9. 72; 0; 7; 56; 7; 9; 9; 28.

Page 399. 1. Add. 2. Subtract. 3. Subtract. 4. Multiply. 5. Divide.

Page 400. 1. $2. 2. 20¢. 3. 30¢. 4. 24¢. 5. 3¢. 6. 4¢. 7. 5¢.

Page 401. 1. 70 lb. 2. 175. 3. 71 lb. 4. $9.81. 5. 5. 6. 205 lb. 7. $750. 8. 150.

Page 402. 1. 187 yr. 2. 48 in. 3. $251. 4. 8 in. 5. 109 in. 6. $75. 7. 53. 8. 4.

Page 404. 1. $3.50. 2. $3.00. 3. 3¢. 4. $9.35. 5. $9. 6. $9.50. 7. $3.50. 8. 25¢.

Page 405. 1. 45; 42; 0; 24; 40; 36; 56; 0; 15. 2. 16; 54; 32; 6; 0; 25; 48; 7; 45. 3. 63; 20; 8; 42; 27; 30; 18; 56; 36. 4. 24; 0; 64; 0; 72; 28; 30; 5; 48. 5. 35; 18; 40; 54; 35; 0; 8; 18; 49. 6. 531. 7. 210. 8. 4535. 9. 2380. 10. 4671. 11. 522. 12. 672. 13. 1620. 14. 1216. 15. 2758. 16. 6860. 17. 3627. 18. 122,815. 19. 387,652. 20. 81,440.

Page 406. 1. 1296. 2. $48.00. 3. $321.25. 4. 141,245. 5. 2448. 6. 11,502. 7. 23,608. 8. 9693. 9. 14,352. 10. 14,868. 11. 36,096. 12. 40,621. 13. 73,863. 14. 121,242. 15. 93,100. 16. 229,460. 17. 68,034. 18. 648,021. 19. 378,658. 20. 408,576. 21. 622,121. 22. 366,905. 23. 235,428. 24. 224,466. 25. 84,945. 26. 366,435. 27. 268,681. 28. 88,355. 29. 296,593. 30. 471,336. 31. 215,738.

Page 407. 1. *By 2:* 26; 36; 30; 34; 28; 32; 44; 106; 42; 46; 64; 126; 108; 144; 166; 184. *By 3:* 39; 54; 45; 51; 42; 48; 66; 159; 63; 69; 96; 189; 162; 216; 249; 276. *By 4:* 52; 72; 60; 68; 56; 64; 88; 212; 84; 92; 128; 252; 216; 288; 332; 368. *By 5:* 65; 90; 75; 85; 70; 80; 110; 265; 105; 115; 160; 315; 270; 360; 415; 460. *By 6:* 78; 108; 90; 102; 84; 96; 132; 318; 126; 138; 192; 378; 324; 432; 498; 552. *By 7:* 91; 126; 105; 119; 98; 112; 154; 371; 147; 161; 224; 441; 378; 504; 581; 644. *By 8:* 104; 144; 120; 136; 112; 128; 176; 424; 168; 184; 256; 504; 432; 576; 664; 736. *By 9:* 117; 162; 135; 153; 126; 144; 198; 477; 189; 207; 288; 567; 486; 648; 747; 828. 2. 26, 39, 52, 65, 78, 91, 104, 117. 3. 28, 42, 56, 70, 84, 98, 112, 126; 30, 45, 60, 75, 90, 105, 120, 135; 32, 48, 64, 80, 96, 112, 128, 144; 34, 51, 68, 85, 102, 119, 136, 153; 36, 54, 72, 90, 108, 126, 144, 162. 4. 372. 5. 420. 6. 392. 7. 237. 8. 564. 9. 776. 10. 354. 11. 432. 12. 395. 13. 348. 14. 336. 15. 882.

Page 408. 1. 204; 17. 2. 120; 10. 3. $1.49. 4. 23 in. 5. $1.73. 6. 36¢. 7. 26¢.

Page 409. 1. 2, 2 R; 9, 3 R; 2, 7 R; 5, 8 R; 6, 4 R. 2. 6, 3 R; 6, 6 R; 9, 2 R; 8, 4 R; 5, 4 R. 3. 6, 5 R; 3, 7 R; 5, 4 R; 3, 5 R; 4, 7 R. 4. 7, 3 R; 2, 5 R; 3, 6 R; 6, 4 R; 4, 5 R. 5. 4, 5 R; 5, 7 R; 3, 1 R; 2, 6 R; 6, 2 R. 6. 7, 5 R; 3, 5 R; 3, 4 R; 3, 5 R; 3, 3 R. 7. 8, 1 R; 6, 1 R; 5, 6 R; 8, 3 R; 4, 6 R. 8. 7, 3 R; 3, 3 R; 6, 8 R; 3, 4 R; 7, 3 R. 9. 4, 5 R; 5, 6 R; 4, 3 R; 2, 6 R; 9, 5 R. 10. 5, 7 R; 7, 4 R; 7, 5 R; 8, 7 R; 4, 5 R. 11. 5, 3 R; 4, 8 R; 6, 1 R; 8, 5 R; 8, 3 R. 12. 3, 6 R; 6, 5 R; 6, 5 R; 8, 5 R; 5, 6 R. 13. 2, 7 R; 4, 4 R; 4, 4 R; 6, 6 R; 5, 3 R. 14. 7, 2 R; 4, 7 R; 3, 3 R; 3, 3 R; 5, 5 R. 15. 2, 6 R; 6, 2 R; 9, 4 R; 6, 7 R; 9, 6 R. 16. 3, 8 R; 7, 6 R; 3, 7 R; 6, 6 R; 5, 5 R.

Page 410. 1. 3. 2. 2. 3. 3. 4. 1. 5. 3. 6. 3. 7. 2. 8. 2. 9. 4. 10. 6. 11. 3. 12. 2. 13. 5. 14. 2. 15. 3. 16. 1.

Page 411. 1. 5. 2. 7. 3. 6. 4. 8. 5. 7. 6. 8. 7. 8. 8. 36. 9. 19. 10. 25. 11. 19. 12. 27. 13. 27. 14. 27. 15. 76. 16. 48. 17. 68. 18. 36. 19. 58. 20. 55. 21. 69.

Page 412. 1. 8, 64 R. 2. 13. 3. 17. 4. 26. 5. 16, 17 R. 6. 22, 11 R. 7. 53, 4 R. 8. 19, 11 R. 9. 37. 10. 35, 2 R. 11. 23, 21 R. 12. 7, 65 R. 13. 59, 32 R. 14. 17, 50 R. 15. 36, 30 R. 16. 71, 84 R. 17. 15, 50 R. 18. 84, 21 R. 19. 65, 20 R. 20. 51, 21 R. 21. 39, 16 R. 22. 78, 67 R. 23. 46, 60 R. 24. 32, 80 R.

Page 413. 1. 91. 2. 40 bu. 3. 35. 4. 9, 26 R. 5. 23, 24 R. 6. 26, 9 R. 7. 19, 16 R. 8. 11, 69 R. 9. 26, 5 R. 10. 13, 11 R. 11. 33, 17 R. 12. 29, 2 R. 13. 22, 18 R. 14. 29, 4 R. 15. 58, 15 R. 16. 68, 57 R. 17. 17, 59 R.

18. 95, 50 R. 19. 59, 36 R. 20. 84, 27 R. 21. 36, 39 R. 22. 65, 35 R. 23. 76, 69 R. 24. 15, 65 R. 25. 38, 60 R. 26. 57, 60 R. 27. 16, 28 R. 28. 39, 3 R. 29. 55, 55 R. 30. 46, 69 R. 31. 98, 47 R. 32. 69, 79 R. 33. 19, 82 R. 34. 76, 56 R. 35. 36, 60 R. 36. 28, 68 R.

Page 414. 1. 5. 2. $24. 3. 8. 4. $9. 5. 23¢. 6. $32. 7. 50¢. 8. 70. 9. 5. 10. $1.20.

Page 415. I. 1. 89. 2. 87. 3. 65. 4. 66. 5. 210. 6. 120. 7. 10. 8. 40. 9. 88. 10. 54. 11. 80. 12. 60. II. 1. 35. 2. 83. 3. 72. 4. 55. 5. 360. 6. 480. 7. 30. 8. 30. 9. 45. 10. 46. 11. 540. 12. 80. III. 1. 82. 2. 91. 3. 9. 4. 19. 5. 720. 6. 560. 7. 40. 8. 80. 9. 34. 10. 7. 11. 630. 12. 90. IV. 1. 41. 2. 60. 3. 15. 4. 12. 5. 240. 6. 540. 7. 50. 8. 90. 9. 42. 10. 17. 11. 490. 12. 60. V. 1. 41. 2. 51. 3. 15. 4. 19. 5. 400. 6. 420. 7. 60. 8. 70. 9. 50. 10. 25. 11. 720. 12. 90.

Page 416. 1. 2. 2. 2. 3. 2. 4. 3. 5. 2. 6. 1. 7. 2. 8. 6. 9. 8. 10. 4. 11. 4. 12. 1.

Page 417. 1. 29, 3 R. 2. 25, 2 R. 3. 26, 1 R. 4. 26, 3 R. 5. 292, 8 R. 6. 84, 3 R. 7. 75, 5 R. 8. 38, 7 R. 9. 93, 1 R. 10. 40. 11. 53, 4 R. 12. 19, 6 R.

Page 418. 1. 76¢. 2. 12. 3. 32. 4. 98¢. 5. 24, 15 R. 6. 13, 11 R. 7. 35, 10 R. 8. 55, 8 R. 9. 16, 41 R. 10. 29, 12 R. 11. 17, 36 R. 12. 24, 26 R. 13. 34, 5 R. 14. 78, 27 R. 15. 57, 4 R. 16. 31, 20 R. 17. 71, 10 R. 18. 48, 26 R. 19. 89, 27 R. 20. 48, 15 R. 21. 83, 43 R. 22. 59, 25 R. 23. 76, 6 R. 24. 67, 22 R. 25. 29, 16 R. 26. 72, 87 R. 27. 67, 30 R. 28. 89, 8 R. 29. 69, 16 R. 30. 48, 15 R. 31. 85, 33 R.

Page 419. 1. 35. 2. 15. 3. $25. 4. 26. 5. 4. 6. 17. 7. 27. 8. 29. 9. 32. 10. 24. 11. 4. 12. 31. 13. 25. 14. 32, 4 R. 15. 17, 7 R. 16. 121, 7 R. 17. 165. 39 R. 18. 267, 12 R. 19. 53, 62 R. 20. 84, 35 R. 21. 83, 48 R. 22. 59, 47 R. 23. 69, 21 R. 24. 48, 45 R. 25. 57, 41 R. 26. 36, 24 R. 27. 36, 43 R. 28. 69, 26 R. 29. 84, 35 R. 30. 62, 40 R. 31. 71, 93 R. 32. 37. 33. 59. 34. 78, 17 R. 35. 85, 29 R. 36. 48, 27 R. 37. 91, 47 R. 38. 67, 25 R. 39. 76, 4 R.

Page 420. 1. 3008. 2. 2007. 3. 2005. 4. 208. 5. 309. 6. 406. 7. 708. 8. 503. 9. 709. 10. 804. 11. 905. 12. 809. 13. 605. 14. 907. 15. 608. 16. 4009. 17. 2006. 18. 2009. 19. 1006. 20. 3008. 21. 1006. 22. 1009. 23. 1008. 24. 1007. 25. 1009. 26. 2009. 27. 3009.

Page 421. 1. 28. 2. 39. 3. 56. 4. 25. 5. 28. 6. 39. 7. 47. 8. 50. 9. 27. 10. 36. 11. 70. 12. 56. 13. 39. 14. 19. 15. 51. 16. 27. 17. 73. 18. 58. 19. 28. 20. 39. 21. 47. 22. 36. 23. 47. 24. 13.

Page 422. 1. 24. 2. 14. 3. 37¢. 4. 39. 5. 69. 6. 48. 7. 98. 8. 65. 9. 52, 74 R. 10. 52. 11. 131. 12. 72. 13. 157. 14. 62. 15. 300. 16. 205. 17. 308. 18. 233. 19. 86. 20. 75. 21. 49. 22. 37. 23. 78, 5 R. 24. 32, 38 R.

Page 423. 1. 2. 2. April, June, September, November. 3. 600. 4. 6. 5. XXIV. 6. 18. 7. $\frac{1}{2}$ ft. 8. 21. 9. L. 10. 8. 11. 6,000,006. 12. 15. 13. 3000. 14. 9:00 P.M.

Page 424. 1. 219. 2. 414. 3. 401. 4. 410. 5. 351. 6. 463. 7. 2317. 8. 2657. 9. 1752. 10. 3554. 11. 3126. 12. 25,501. 13. 30,848. 14. 30,803. 15. 26,711. 16. $290.30. 17. $290.66. 18. $3373.68.

Page 425. 1. 99. 2. 81. 3. 63. 4. 84. 5. 100. 6. 53. 7. 55. 8. 64. 9. 101. 10. 44. 11. 46. 12. 76. 13. 79. 14. 26. 15. 28. 16. 19. 17. 59. 18. 49. 19. 38. 20. 37. 21. 38. 22. 54. 23. 58. 24. 38. 25. 168,182. 26. 385,910. 27. 232,842. 28. 793,728. 29. 569,696. 30. 295,679. 31. 192,723. 32. 643,772. 33. 368,640. 34. 421. 35. 211. 36. 211. 37. 65. 38. 34. 39. 46. 40. 52. 41. 37. 42. 78. 43. 93. 44. 14. 45. 49.

Page 426. 1. 895. 2. 392. 3. 100; 50; 1875; 3. 4. 9; 0; 9; 0; 10; 9; 8; 9; 1. 9. 4; 1; 0; 5; 8. 10. 210; 321; 403; 173, 2 R; 104, 1 R. 11. 102, 1 R; 56; 153, 5 R; 112; 135, 5 R. 12. 80, 1 R; 150, 5 R; 121, 3 R; 219; $0.68. 13. 120; 112, 4 R; 150, 1 R; 422; $0.12.

Page 428. 6. 15,002,019. 7. 62,000,130. 8. 41,006,006. 9. 487,000,000. 10. 516,000,300. 12. 999,999; 999,999,999. 13. 100,000; 100,000,000.

Page 429. 1. 19,039. 2. 17,611. 3. 18,315. 4. 22,043. 5. 3262. 6. 2624. 7. 2599. 8. 17,872. 9. 4858. 10. 6844. 11. 4955. 12. 3569. 13. 7549. 14. 4975. 15. 6866. 16. 4887. 17. 3667. 18. 3227. 19. 3586. 20. 6255. 21. 3849. 22. 4717. 23. 2887. 24. 2749.

Page 430. 1. 329,069. 2. 15,184. 3. California; $5071, $11,660, $3245, $14,577, $11,275. 4. $3302; $385.

Page 432. 1. 65,104. 2. 74,700. 3. 13,260. 4. 394,848. 5. 292,950. 6. 188,496. 7. 271,949. 8. 817,215. 9. 426,360. 10. 432,208. 11. 380,492. 12. 112,128. 13. 314,340. 14. 428,239. 15. 689,700. 16. 823,768. 17. 92,904. 18. 502,740. 19. 132,444. 20. 98,972. 21. 37,209. 22. 261,834. 23. 544,320. 24. 42,772. 25. 34,125. 26. 565,964. 27. 749,580. 28. 527,460. 29. 496,485. 30. 283,296. 31. 833,280. 32. 718,536. 33. 776,640. 34. 690,566. 35. 607,260. 36. 647,145.

Page 433. 1. $291. 2. $520. 3. $588. 4. $25.68. 5. $15.80. 6. $57.52. 7. 265 tops. 8. 267 hens. 9. 304 boys.

Page 434. 1. $161. 2. $11.25. 3. $135. 4. 1380. 5. $31.05. 6. $88.74. 7. 675 lb. 8. $247.52.

Page 435. 1. 20; 41; 71; 40; 53. 2. 51; 41; 90; 52; 51. 3. 112; 110; 101; 202; 90. 4. 70; 90; 90; 92; 100. 5. 21; 91; 91; 83; 41. 6. 400; 63; 71; 71; 63. 7. 31; 20; 43; 94; 61. 8. 31; 41; 71; 82; 91. 9. 31; 91; 32; 61; 51. 10. 321; 21; 41; 71; 81. 11. 100; 111; 73; 71; 21. 12. 402; 70; 203; 101; 51. 13. 60; 50; 81; 90; 81. 14. 51; 50; 60; 60; 90. 15. 61; 51; 54; 70; 101. 16. 81; 31; 82; 40; 80.

Page 436. 1. 27; 4. 2. 35¢. 3. 31. 4. $385. 5. 37, 6 R. 6. 23, 18 R. 7. 19, 26 R. 8. 26, 17 R. 9. 12, 2 R. 10. 17, 5 R. 11. 13, 3 R. 12. 18, 10 R. 13. 23, 14 R. 14. 18, 1 R. 15. 18, 34 R. 16. 21, 4 R. 17. 21. 18. 22, 7 R. 19. 59, 5 R. 20. 46, 69 R. 21. 36, 43 R. 22. 75, 34 R. 23. 75, 9 R. 24. 53, 62 R. 25. 69, 12 R.

Page 437. 1. 26, 21 R. 2. 35, 18 R. 3. 21, 8 R. 4. 17, 3 R. 5. 15, 7 R. 6. 26, 3 R. 7. 29, 2 R. 8. 14, 5 R. 9. 19, 3 R. 10. 13, 2 R. 11. 57, 3 R. 12. 69, 4 R. 13. 34, 3 R. 14. 29, 9 R. 15. 36, 61 R. 16. 96, 9 R. 17. 71, 1 R. 18. 56, 14 R. 19. 47, 10 R. 20. 75, 7 R. 21. 45, 8 R. 22. 67, 2 R. 23. 57, 9 R. 24. 41, 81 R. 25. 72, 4 R. 26. 93, 13 R. 27. 69, 8 R. 28. 32, 66 R. 29. 89, 26 R. 30. 54, 7 R.

Page 438. 1. 38 hr. 2. 29 hr. 3. 32. 4. 16 da. 5. 19, 19 R. 6. 31, 1 R. 7. 14, 35 R. 8. 21, 1 R. 9. 13, 14 R. 10. 30, 20 R. 11. 24, 19 R. 12. 121, 69 R. 13. 72, 73 R. 14. 83, 20 R. 15. 54, 4 R. 16. 71, 23 R. 17. 28, 23 R. 18. 46, 11 R. 19. 37, 1 R. 20. 21, 4 R. 21. 78, 8 R. 22. 81, 1 R. 23. 53, 5 R. 24. 96, 8 R. 25. 73, 3 R.

Page 439. 1. 5. 2. 38. 3. 60. 4. 60¢. 5. $2.00. 6. 15¢. 7. 84. 8. $1.00. 9. 25¢. 10. 50¢.

Page 440. 1. 4. 2. 5; 9. 3. 6; 8. 4. 6. 5. 4. 6. 4. 7. 3. 8. 8. 9. 3. 10. 3. 11. 4. 12. 7. 13. 8. 14. 8. 15. 12. 16. 3. 17. 3.

Page 441. 1. 12. 2. 13. 3. 21. 4. 32. 5. 31. 6. 21. 7. 17. 8. 49. 9. 42. 10. 27. 11. 24. 12. 15. 13. 29. 14. 19. 15. 13. 16. 12. 17. 31. 18. 15. 19. 21. 20. 42. 21. 26. 22. 53. 23. 32. 24. 21.

Page 442. 1. 352. 2. 7. 3. 250 miles. 4. 23. 5. 130. 6. $24. 7. 250.

Page 443. 1. $2.51. 2. $1.23. 3. $1.45. 4. $1.31. 5. $2.16. 6. $1.20. 7. $1.36. 8. $1.05. 9. $1.06. 10. $2.50. 11. $3.18. 12. $1.29. 13. $1.37. 14. $1.05. 15. $1.15. 16. $2.50. 17. $1.29. 18. $1.08.

Page 444. 4. 82. 5. 61. 6. 53. 7. 24. 8. 21. 9. 35. 10. 31. 11. 21. 12. 72, 90 R. 13. 31, 530 R. 14. 28, 272 R. 15. 99, 84 R. 16. 694, 108 R. 17. 257, 2 R. 18. 216. 19. 123. 20. 593. 21. 345. 22. 214, 292 R. 23. 854. 24. 424. 25. 2230. 26. 533, 43 R. 27. 424, 200 R. 28. 262, 445 R. 29. 715, 50 R.

Page 445. 2. 42°. 3. 32°. 4. 4° too warm; 10° too cold.

Page 446. 1. 180°. 2. 34°. 3. No. 4. Cooler; 14°. 5. 27°; no. 6. 40°. 7. Colder; 5°; winter. 8. 20°.

Page 447. 2. 320. 3. 1. 5. 16; $\frac{1}{2}$. 6. 5; 18. 7. 6. 8. 3. 9. 1. 10. 160. 11. 80. 12. 40.

Page 448. 1. 12. 3. 4. 6. 70. 7. 300 ft. 8. 72. 9. 480 rd. 10. 340.

Page 449. 1. 24 in. 2. A square. 3. 4; 4. 5. 5; 25. 6. 25. 8. 4.

Page 451. 1. 144. 2. 12. 3. 10 sq. in. 4. 21 sq. in. 5. 30 sq. in. 6. 18 sq. in. 7. 27 sq. in. 8. 40 sq. in. 9. 42 sq. in. 10. 24 sq. in. 11. 24 sq. ft. 12. 60 sq. ft. 13. 44 sq. ft. 14. 30 sq. ft. 15. 2. 16. 6. 17. 3; 9.

Page 452. 1. 25 ft.; 20 ft. 2. 25 ft.; 5 ft. 3. 25 ft.; 10 ft. 4. 500 sq. ft.; 125 sq. ft.; 250 sq. ft.; 875 sq. ft.

Page 455. 1. 3 balls. 2. 5 tops. 3. 3 pens. 4. 8 boys. 5. 3 fourths. 6. 5 eighths. 7. 3 fifths. 8. 8 tenths. 9. $\frac{3}{8}$. 10. $\frac{5}{9}$. 11. $\frac{3}{5}$. 12. $\frac{2}{3}$. 13. $\frac{5}{7}$. 14. $\frac{5}{6}$. 15. $\frac{6}{7}$. 16. $\frac{5}{8}$. 17. $\frac{2}{3}$. 18. $\frac{6}{7}$. 19. $\frac{3}{8}$. 20. $\frac{8}{9}$. 21. $\frac{4}{5}$. 22. $\frac{5}{7}$. 23. $\frac{4}{5}$. 24. $\frac{2}{4}$. 25. $\frac{6}{8}$. 26. $\frac{3}{7}$.

Page 458. 1. $\frac{3}{4}$; $\frac{1}{5}$; $\frac{1}{8}$; $\frac{3}{5}$; $\frac{5}{6}$; $\frac{5}{8}$. 3. $1\frac{2}{3}$. 4. $\frac{1}{5}$ mi. 5. $1\frac{1}{7}$. 6. 1. 7. $1\frac{2}{7}$. 8. $1\frac{2}{3}$. 9. 1. 10. $1\frac{2}{7}$. 11. $1\frac{5}{8}$.

Page 459. 1. 4. 2. 6. 3. 9. 4. $8\frac{2}{3}$. 5. $10\frac{1}{3}$. 6. $9\frac{1}{3}$. 7. 4. 8. 6. 9. $10\frac{5}{7}$. 10. 6. 11. 4. 12. $5\frac{7}{8}$.

Page 460. 1. $\frac{1}{2}$. 2. 1. 3. 1. 4. $\frac{1}{4}$. 5. $\frac{1}{2}$. 6. 1. 7. $\frac{3}{4}$. 8. $\frac{7}{8}$. 9. $\frac{3}{4}$. 10. 1. 11. $\frac{1}{2}$. 12. $\frac{7}{8}$. 13. $\frac{5}{8}$. 14. 1. 15. $\frac{5}{8}$. 16. $\frac{7}{8}$. 17. $\frac{7}{8}$. 18. 1. 19. 1. 20. $\frac{3}{4}$. 21. 1. 22. $\frac{3}{4}$. 23. 1. 24. 1.

Page 461. 1. $\frac{3}{8}$. 2. $\frac{5}{8}$. 3. $\frac{5}{8}$. 4. $1\frac{1}{8}$. 5. $\frac{7}{8}$. 6. $\frac{7}{8}$. 7. $\frac{7}{8}$. 8. $1\frac{1}{8}$. 9. $1\frac{1}{8}$. 10. $1\frac{5}{8}$. 11. $1\frac{3}{8}$. 12. $1\frac{3}{8}$.

Page 462. 1. $2\frac{3}{4}$ lb. 2. $2\frac{7}{8}$ lb. 3. $4\frac{1}{2}$ mi. 4. $4\frac{1}{2}$ hr. 5. $18\frac{1}{2}$ lb. 6. $3\frac{3}{8}$. 7. $7\frac{5}{8}$. 8. $8\frac{1}{8}$. 9. $5\frac{7}{8}$. 10. $10\frac{7}{8}$. 11. $10\frac{3}{8}$. 12. $7\frac{1}{2}$. 13. $6\frac{3}{4}$. 14. $8\frac{5}{8}$. 15. 8. 16. $6\frac{1}{4}$. 17. $12\frac{1}{2}$.

Page 463. 1. $4\frac{3}{4}$. 2. $4\frac{3}{4}$. 3. 4 in. 4. 2. 5. 2. 6. 2. 7. 2. 8. 4. 9. 4. 10. 8. 11. 1. 12. 1. 13. 3. 14. 3. 15. 6. 16. 1. 17. 4. 18. 2. 19. 6. 20. 3. 21. 4. 22. 4. 23. 5. 24. 6. 25. 2. 26. 1. 27. 2. 28. 1. 29. 1; 3. 30. 1; 1. 31. 1; 2. 32. 1; 1. 33. 1; 3.

Page 464. 1. $12\frac{3}{4}$ mi. 2. $3\frac{3}{4}$ mi. 3. 15 mi. 4. $13\frac{3}{4}$ mi. 5. $6\frac{3}{4}$ mi. 6. $5\frac{1}{2}$ mi. 7. $8\frac{1}{4}$ mi. 8. 7 mi. 9. 11 mi. 10. $25\frac{1}{2}$ mi.

Page 465. 1. $\frac{3}{7}$. 2. $\frac{1}{2}$. 3. $\frac{1}{3}$. 4. $\frac{1}{2}$. 5. $\frac{1}{2}$. 6. $\frac{1}{2}$. 7. $\frac{1}{4}$. 8. $\frac{1}{2}$. 9. $\frac{1}{4}$. 10. $\frac{1}{2}$. 11. $\frac{1}{3}$. 12. $\frac{3}{4}$. 13. $\frac{2}{3}$. 14. $\frac{3}{5}$. 15. $\frac{3}{7}$. 16. $\frac{1}{4}$. 17. $\frac{1}{5}$. 18. $\frac{4}{7}$.

Page 466. 1. $\frac{1}{2}$ mi. 2. $\frac{1}{4}$ mi. 3. $2\frac{1}{2}$ mi. 4. $\frac{1}{4}$ mi. 5. $\frac{1}{2}$. 6. $\frac{1}{3}$. 7. $\frac{2}{5}$. 8. $\frac{2}{3}$. 9. $\frac{1}{4}$. 10. $\frac{1}{3}$. 11. $\frac{2}{7}$. 12. $\frac{1}{3}$. 13. $\frac{4}{5}$. 14. $3\frac{1}{2}$. 15. $3\frac{1}{3}$. 16. $2\frac{1}{2}$. 17. $3\frac{2}{3}$. 18. $4\frac{1}{4}$. 19. $4\frac{1}{5}$. 20. $2\frac{1}{4}$. 21. $1\frac{2}{3}$. 22. $1\frac{1}{2}$. 23. $1\frac{2}{7}$. 24. $3\frac{1}{3}$. 25. $2\frac{1}{5}$. 26. $1\frac{1}{6}$. 27. $3\frac{3}{4}$. 28. $1\frac{2}{3}$. 29. $2\frac{2}{5}$. 30. $3\frac{1}{3}$. 31. $4\frac{1}{4}$.

Page 467. 1. $5\frac{1}{4}$ lb. 2. $2\frac{1}{4}$ lb. 3. $2\frac{1}{4}$ lb. 4. $2\frac{1}{8}$ lb. 5. $2\frac{1}{3}$ lb. 6. $2\frac{1}{3}$ lb. 7. $1\frac{1}{2}$ lb. 8. $\frac{1}{3}$. 9. $\frac{1}{3}$. 10. $\frac{1}{4}$. 11. $5\frac{1}{3}$. 12. $5\frac{1}{4}$. 13. $5\frac{3}{8}$. 14. $\frac{1}{4}$. 15. $\frac{3}{8}$. 16. $\frac{3}{8}$. 17. $4\frac{1}{8}$. 18. $5\frac{1}{8}$. 19. $4\frac{5}{8}$.

Page 468. 1. $1\frac{1}{2}$. 2. 15. 3. 2640. 4. 3000. 5. 45. 6. 2. 7. 2. 8. 18. 9. 90. 10. 2. 11. 4. 12. 20. 13. 1. 14. 1000. 15. 1. 16. 3. 17. 20. 18. 80.

Page 469. 1. 4. 2. 8 oranges. 3. 5; 5; 10. 4. 5; 5; 15. 5. 4; 12. 6. 6; 12. 7. 2; 10. 8. 3; 15. 9. 7. 10. 4. 11. 8. 12. 12. 13. 3. 14. 15. 15. 4. 16. 8. 17. 20. 18. 20. 19. 6. 20. 12.

Page 470. 1. 10. 2. 6¢. 3. 30¢. 4. 40¢. 5. 80¢. 6. 30¢. 7. 30¢. 8. 12, apple; 4, plum; 8, currant. 9. 25¢. 10. 15¢. 11. 75¢. 12. 32¢.

Page 471. 1. $12. 2. 32. 3. 100. 4. 350. 5. 20 bu. 6. $1.25. 7. 120. 8. 200. 9. 90. 10. 100. 11. 42. 12. 363. 13. 123. 14. 50. 15. 155. 16. 464. 17. 375. 18. 147. 19. 630. 20. 105. 21. 164.

Page 472. 1. $1.00. 2. $5.25. 3. $1.32. 4. $2.10. 5. $1.54. 6. $1.65. 7. $3.30. 8. 70¢. 9. 60¢. 10. $1.40. 11. 51¢. 12. $1.20. 13. $2.52. 14. 92¢. 15. $1.02. 16. $5.58. 17. $4.62. 18. $13.94. 19. $11.60.

Page 473. 1. 28. 2. 180. 3. 22. 4. 9. 5. 80.

Page 474. 1. 5. 2. $15. 3. 5. 4. 15 min. 5. 45¢. 6. 5¢. 7. 36. 8. 18. 9. 50¢. 10. $2.00.

Page 475. 1. $15. 2. 15 min. 3. 5¢. 4. 18. 5. $2.00. 6. 20¢. 7. $1.50. 8. 30¢.

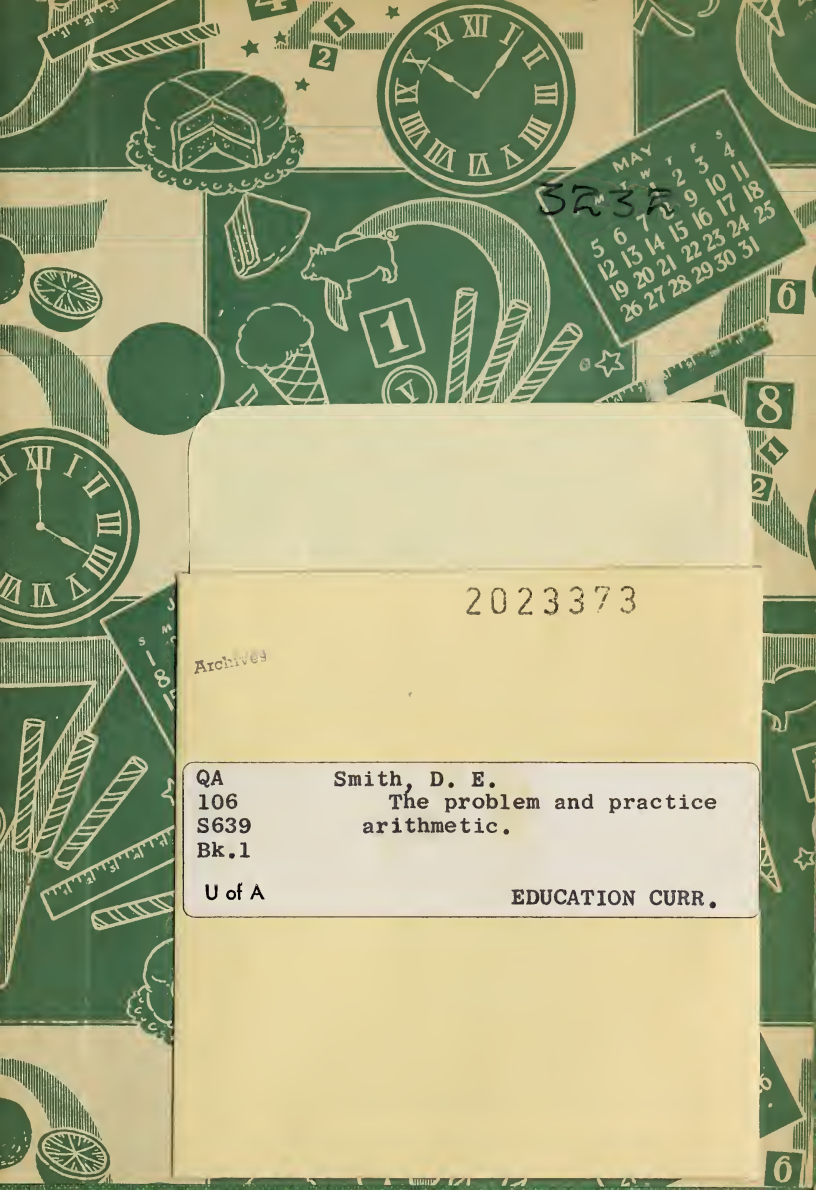
Page 476. 1. 84. 2. 56. 3. 14. 4. 21. 5. 16¢.

Page 477. 1. $3\frac{7}{8}$. 2. $4\frac{1}{4}$. 10. 4. 11. 2000. 12. 12. 13. 60. 14. 4. 15. 16. 16. +. 17. ×. 18. ÷. 19. +. 20. −. 21. −. 22. +. 23. +.

Page 478. 1. $500,000,000. 3. 49. 4. 50. 5. $35\frac{1}{4}$. 6. 30.

Page 480. 1. 77. 2. 38. 3. 128. 4. 390. 5. 2019. 6. 65. 7. 17. 8. 824. 9. 129. 10. 268. 11. 8265. 12. 4740. 13. 374,262. 14. 368,445. 15. 240,300. 16. 230. 17. 107. 18. 29. 19. 29. 20. $1\frac{1}{3}$. 21. $\frac{7}{8}$. 22. $1\frac{1}{8}$. 23. $4\frac{1}{4}$. 24. $4\frac{5}{8}$. 25. $\frac{1}{2}$. 26. $\frac{1}{4}$. 27. $\frac{5}{8}$. 28. $4\frac{1}{4}$. 29. $4\frac{3}{8}$. 30. 20. 31. 100. 32. 24. 33. 60. 34. 120.

JUNE
S M T W T F S
1 2 3 4 5
6 7 8 9 10 11 12
13 14 15 16 17 18 19
20 22 23 24 25 26 27
28 29 30
JULY
S M T W T F S
1 2 3 4
5 6 7 8 9 10 11
12 13 14 15 16 17 18
19 20 21 22 23 24 25
26 27 28 29 30 31
DECEMBER
S M T W T F S
1 2 3 4 5 6
7 8 9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30 31



3233

2023373

Archives

QA
106
S639
Bk.1

Smith, D. E.
The problem and practice arithmetic.

U of A

EDUCATION CURR.

QA 106 S639 bk.1 c.1
Smith, David Eugene, 1860
The problem and practice arith
CURRHIST
0 0004 8511 810